



TotalEnergies E&P North Sea UK Ltd

# Culzean - Floating Offshore Wind Turbine Pilot Project Environmental Impact Assessment Report – Chapter 1 - Introduction

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Aberdeen

The Capitol Building  
431 Union Street.  
AB11 6DA. UK

T +44 1224 219 955  
E [deborah.morgan@xodusgroup.com](mailto:deborah.morgan@xodusgroup.com)  
[www.xodusgroup.com](http://www.xodusgroup.com)

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## GLOSSARY

TERMINOLOGY	DESCRIPTION
<b>Culzean Floating Offshore Wind Pilot Project (the 'Project')</b>	The entire Development including all offshore components and all project phases from pre-construction to decommissioning.
<b>Environmental Assessment (EIA) Impact</b>	The procedure to predict, minimise, measure and, if necessary, correct and compensate the impacts produced by any human action.
<b>EIA Regulations</b>	The Marine Works (Environmental Impact Assessment) Regulations 2007 requires that certain types of projects with the potential to significantly affect the environment have an environmental impact assessment before a marine licence decision is made.
<b>Habitats Regulations Assessment (HRA)</b>	Under the Habitats Regulations, all competent authorities must consider whether any plan or project could affect a European site before it can be authorised or carried out. This includes considering whether it will have a 'Likely Significant Effect' (LSE) on a European site, and if so, they must carry out an 'Appropriate Assessment' (AA). This process is known as Habitats Regulations Appraisal (HRA)
<b>Innovation and Targeted Oil and Gas (INTOG)</b>	The Initial Plan Framework Sectoral Marine Plan for Offshore Wind for INTOG encompasses spatial opportunities and a strategic framework for future offshore wind developments within sustainable and suitable locations that will help deliver the wider United Kingdom (UK) and Scottish Government Net Zero targets.
<b>Marine Licence Application ('the Application')</b>	A Marine Licence is granted under the Marine and Coastal Access Act 2009 for projects between 12-200 Nautical Miles (nm) from shore, or the Marine (Scotland) Act 2010 for projects between Mean High-Water Springs (MHWS) out to 12 nm from shore. The Application includes HRA-supporting documentation (where required), an application letter, Marine Licence application form and this EIAR.
<b>Maximum Design Scenario (MDS)</b>	The maximum range of design scenarios for all infrastructure.
<b>Net Zero</b>	Refers to a government commitment to ensure the UK reduces its greenhouse gas emissions by 100% from 1990 levels by 2050 and in Scotland, the same target is set for 2045. If met, the amount of greenhouse gas emissions produced by the UK would be equal to or less than the emissions removed by the UK from the environment.
<b>Project Design Envelope (PDE)</b>	Maximum range of design parameters of all infrastructure assessed as in the EIA.
<b>Study Area</b>	Receptor specific area used to characterise the baseline.
<b>Project Area</b>	The extent of the immediate area surrounding the floating Wind Turbine Generator (WTG) and cable route as characterised by extent of seabed environmental and habitat surveys. Referred to as the Survey Area where specifically relating to survey activities.
<b>Floating Wind Turbine Generator (WTG)</b>	Device that converts the kinetic energy of wind into electrical energy. Can be functionally divided into four parts: wind turbine, tower and transition piece, floating foundation, and mooring system.

## ACRONYMS AND ABBREVIATIONS

ACRONYM/ ABBREVIATION	DEFINITION
AD	Air Defence
AEOSI	Adverse Effects on Site Integrity
AIS	Automatic Information Systems
ATC	Air Traffic Control
BEIS	Department for Business Energy and Industrial Strategy (now the DESNZ)
CA	Comparative Assessment
CES	Crown Estate Scotland
CNS	Central North Sea
CPF	Central Processing Facility Platform
cSAC	Candidate Special Area of Conservation
DAS	Digital Aerial Survey
DDV	Drop Down Video
DESNZ	Department for Energy Security and Net Zero (formerly BEIS)
DTU	Technical University of Denmark
E&P	Exploration and Production
EA	Environmental Appraisal
EBS	Environmental Baseline Survey
eDNA	Environmental Deoxyribonucleic Acid (DNA)
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
ENVID	Environmental Risk Identification
ES	Environmental Statement
EU	European Union
FLO	Fisheries Liaison Officer
FLOWW	The Fishing Liaison with Offshore Wind and Wet Renewables Group
GW	Gigawatts
HRA	Habitats Regulations Appraisal
ICES	International Council for the Exploration of the Sea
IEMA	Institute of Environmental Management and Assessment
INTOG	Innovation and Targeted Oil and Gas
IPF	Initial Plan Framework
LiDAR	Light Detection and Ranging
LSE	Likely Significant Effect

ACRONYM/ ABBREVIATION	DEFINITION
km	kilometres
m	metre
MASTS	Marine Alliance for Science and Technology for Scotland
MBES	Multibeam Echosounder
MCA	Marine and Coastguard Agency
MD-LOT	Marine Directorate – Licensing Operations Team
MHWS	Mean High Water Springs
MIMarEST	Member of the Institute of Marine Engineering, Science and Technology
MoD	Ministry of Defence
MW	Megawatts
NID	Nature Inclusive Design
NGO	Non-Governmental Organisation
NNS	Northern North Sea
NLB	Northern Lighthouse Board
nm	Nautical Miles
NRA	Navigational Risk Assessment
NSTA	North Sea Transition Authority
OWF	Offshore Wind Farm
PETs	Portal Environmental Tracking System
PSA	Particle Size Analysis
pSPA	Potential Special Protection Area
R&D	Research and Development
RIAA	Report to Inform Appropriate Assessment
ROV	Remotely Operated Vehicle
SAC	Special Area of Conservation
SBP	Sub-Bottom Profiling
SCI	Site of Community Importance
ScotMER	Scottish Marine Energy Research
SLVIA	Seascape and Landscape Visual Impact Assessment
SPA	Special Protection Area
SSS	Side Scan Sonar
SWFPA	Scottish White Fish Producers Association
TEPNSUK	TotalEnergies Exploration and Production North Sea UK Limited
TRUK	TotalEnergies Renewables UK Limited
UK	United Kingdom
UKCS	United Kingdom Continental Shelf



ACRONYM/ ABBREVIATION	DEFINITION
ULQ	Utilities and Living Quarter Platform
WHP	Wellhead Platform
WTG	Wind Turbine Generator

# 1 INTRODUCTION

## 1.1 Purpose of This Report

In accordance with the Marine Works (Environmental Impact Assessment) Regulations 2007 (United Kingdom (UK) Government, 2007), an Environmental Impact Assessment (EIA) is specifically required for the Culzean Offshore Floating Wind Pilot Project (the 'Project'). These EIA regulations apply to applications for a Marine Licence ('the Application') from 12 to 200 Nautical Miles (nm) (see Chapter 2: Legislation and Policy, for further information).

An Environmental Impact Assessment Report (EIAR) contains specific information on a project's potential environmental effects as identified through the EIA. This EIAR presents such information for the Project describing its potential environmental effects during the pre-construction, construction, operation and maintenance, and decommissioning phases.

This EIAR takes account of the Scoping Opinion adopted by the Scottish Ministers in July 2023 and is in line with the Marine Scotland Consenting and Licensing Guidance (Scottish Government, 2018). Additionally, this EIAR 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.

Whilst this Project is not seeking consent under Section 36 of the Electricity Act 1989, TotalEnergies Exploration and Production North Sea UK Limited (TEPNSUK) are aligning the approach to EIA with the Scottish Government (2022) Guidance for applicants on using the design envelope for applications under Section 36 as best practice.

Under the requirement to consider the potential impacts of plans and projects on European sites, under the 'Conservation of Offshore Marine Habitats and Species Regulations 2017' (The Habitat Regulations; European Commission, 1992), TEPNSUK are also submitting Habitats Regulations Appraisal (HRA) Screening and Report to Inform Appropriate Assessment (RIAA) as a combined report along with the Application to the Competent Authority (Document ID: GB-CZN-00-XODUS-000023).

## 1.2 Company Background

TEPNSUK (within the wider TotalEnergies UK portfolio) is one of the largest energy companies on the United Kingdom Continental Shelf (UKCS) with three main asset groups in Scottish Offshore Waters:

- West of Shetland – four producing fields with further exploration potential;
- Northern North Sea (NNS) – a core production hub with growth opportunities; and
- Central North Sea (CNS) – including the Culzean Field (which came onstream in 2019) and the Elgin Franklin Field.

TotalEnergies (TEPNSUK's parent company), is targeting installation of 35 Gigawatts (GW) of renewables by 2025 and 100 GW by 2030 worldwide. TotalEnergies is developing a portfolio of offshore wind projects in the UK through TotalEnergies Renewables UK Limited (TRUK). TEPNSUK and TRUK are both based in Aberdeen and work closely together.



TEPNSUK is eager to secure relevant permissions for the construction and deployment of the Project in Scottish Offshore Waters, demonstrating TEPNSUK's commitment to support the growth of cleaner energy production and its ability to deliver it, and to meet the North Sea Transition Authority (NSTA) net zero targets (BEIS, 2021).

### 1.3 Innovation and Targeted Oil and Gas Decarbonisation Leasing Approach

The Innovation and Targeted Oil and Gas (INTOG) Initial Plan Framework (IPF) set out a spatial plan to which the INTOG leasing process was aligned. Under the INTOG process, seabed lease rights were awarded to offshore wind farm projects that provided low carbon electricity to power oil and gas installations (to help to decarbonise the sector) or to small-scale innovation projects. The spatial planning exercise was confirmed in August 2020 and initial information on the leasing process was published in February 2022 along with the Initial Plan Framework for a Sectoral Marine Plan for INTOG (Marine Scotland, 2022); seabed lease applications were submitted to Crown Estate Scotland (CES) in November 2022. There were two lease types available:

- IN - Small scale innovation projects of less than 100 Megawatts (MW); and
- TOG - Projects connected directly to oil and gas infrastructure to support the decarbonisation of the oil and gas sector (no minimum or maximum capacity per TOG project; the maximum total installed capacity across all TOG projects is up to 5.7 GW).

An Exclusivity Agreement was awarded to TEPNSUK in March 2023 under TOG.

### 1.4 Project Overview

TEPNSUK is proposing to demonstrate the possibility of electrifying existing oil and gas assets in the North Sea via the installation of a floating Wind Turbine Generator (WTG), which would connect to the existing oil and gas platform (Culzean Field). The Culzean Field is in the CNS, in an area of ongoing oil and gas activities, approximately 222 kilometres (km) east of Aberdeen in UKCS Block 22/25a. The Project is within the offshore wind INTOG lease area E-a (Figure 1-1).

The Project has two primary objectives:

1. Qualify a new semi-submersible floating substructure WTG concept,
2. Perform a hybridisation test on an Exploration and Production (E&P) asset.

The Culzean Field facilities comprise a Wellhead Platform (WHP), a Central Processing Facility Platform (CPF) and a separate Utilities and Living Quarter Platform (ULQ). It is proposed that the floating WTG will be linked to the CPF via a 2 km export cable route (Figure 1-1).

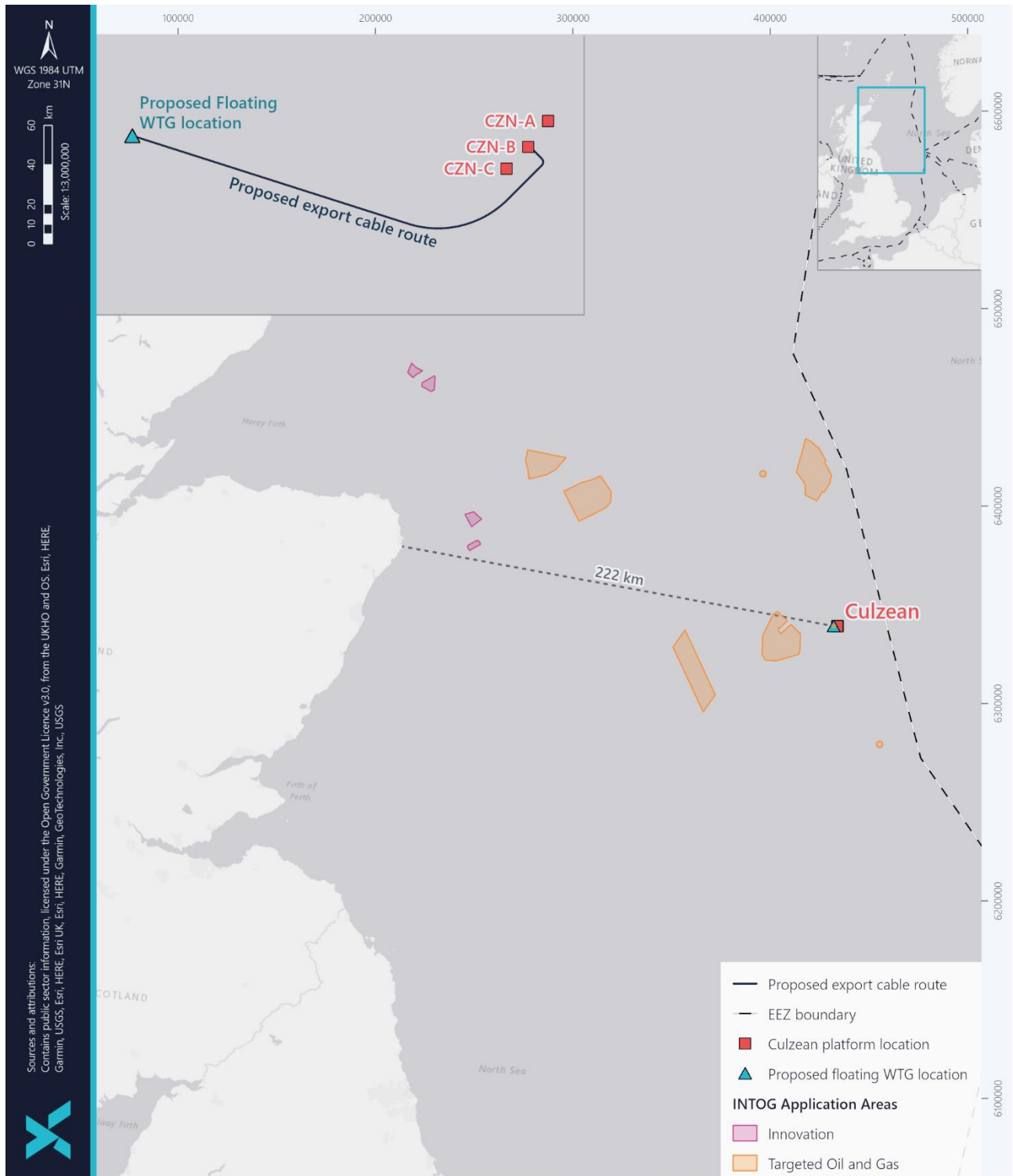


Figure 1-1 Location of the Project and INTOG Lease Areas

TEPNSUK will combine the knowledge gained through its stakes in Seagreen and the West of Orkney offshore wind projects to test and develop the feasibility of electrification for platforms in UK offshore waters but also worldwide. The Project does not require a grid connection to shore, and the Project will be entirely within the offshore region between 12 nm and the Exclusive Economic Zone (EEZ) boundary.

The rationale of the Project is to trial the new floater technology using a readily available WTG design. This new technology will deliver opportunities for significant cost savings, industrialisation of larger projects, and provide TEPNSUK with valuable experience in the hybridisation of assets; with the Culzean Field providing an additional opportunity to pilot the integration of a floating WTG with an oil and gas installation for the provision of power. The water depth at Culzean facilities (approximately 90 metres (m)) provides an ideal environment to trial the pilot floating technology. Furthermore, TEPNSUK has extensive knowledge of the Culzean Field and surrounding area which will facilitate rapid deployment.

In parallel to the primary objectives, the project will utilise the pilot to implement a scientific Research and Development (R&D) programme in conjunction with the Technical University of Denmark (DTU) and the Marine Alliance for Science and Technology for Scotland (MASTS). This programme will provide knowledge and experience on offshore wind turbine construction, integration, installation, operations, and maintenance. In line with NatureScot (2022) guidance on securing positive effects for biodiversity from local development, this project will also provide vital information to inform Nature Inclusive Design (NID) and the impacts on the biodiversity around WTGs and cable routes. The research will also qualify new equipment and perform data assessment to support methodologies and processes to be used on larger offshore wind farms.

To implement the R&D programme, some equipment will be deployed on and around the WTG and substructure. This equipment falls within the Marine Licence exemption criteria per the Marine Directorate (formerly Marine Scotland) Scientific Instrument Deposit and Removal Guidance (Marine Scotland, 2011), as such is not covered by this Application. The approach to the deployment of this equipment will be discussed in consultation with the Maritime and Coastguard Agency (MCA) and the Northern Lighthouse Board (NLB).

An overview of the sub-projects to be included is provided in Figure 1-2. These cover the themes of:

- Environmental Deoxyribonucleic Acid (eDNA)-based monitoring development;
- Biodiversity and ecosystem indicators; and
- Active acoustics and optics monitoring development.

For example, the Project's Scientific Programme will:

- Estimate the biodiversity footprint of platforms and its consequences for local ecosystems through the use of autonomous eDNA laboratories, wide-band echo sounder and optical water quality sensors;
- Use bird and drone detection radar systems to monitor bird activity;
- Investigate wake effects using Light Detecting and Ranging (LiDAR) equipment and associated metocean sensors to validate WTG performance and calibrate simulation tools;
- Study WTG activity using special sensors fixed directly along the blades, to better understand the resistance of the WTG in a moving environment;
- Investigate floating substructure technology and qualification and provide feedback for the manufacturing and assembly processes;

- Study the application of anti-fouling paint to study the impact of different coatings on the overall floatability; and
- Assess offshore technician transfer feasibility on board the WTG according to weather and sea state conditions, correlated by real-time measurements.

In summary, the Project will provide a basis from which to assess the functionality of the floating WTG and the overall design of the project in the environmental setting of the CNS, which will inform similar developments in the future. The pilot also provides an opportunity for environmental monitoring in the offshore environment. TEPNSUK are also currently investigating participation in ongoing academic projects as part of the R&D programme, with the potential to provide the Project as a test site for several further environmental monitoring projects.

TEPNSUK believes establishing an innovative, net zero transition flagship project in the UK will demonstrate the commitment to energy transition and unlock further development potential. This project would enable proof of the concept, support cost reduction initiatives, foster cross sector learnings and reinforce the offshore wind net zero ambition whilst further developing Scotland as a centre for innovation and technical excellence.

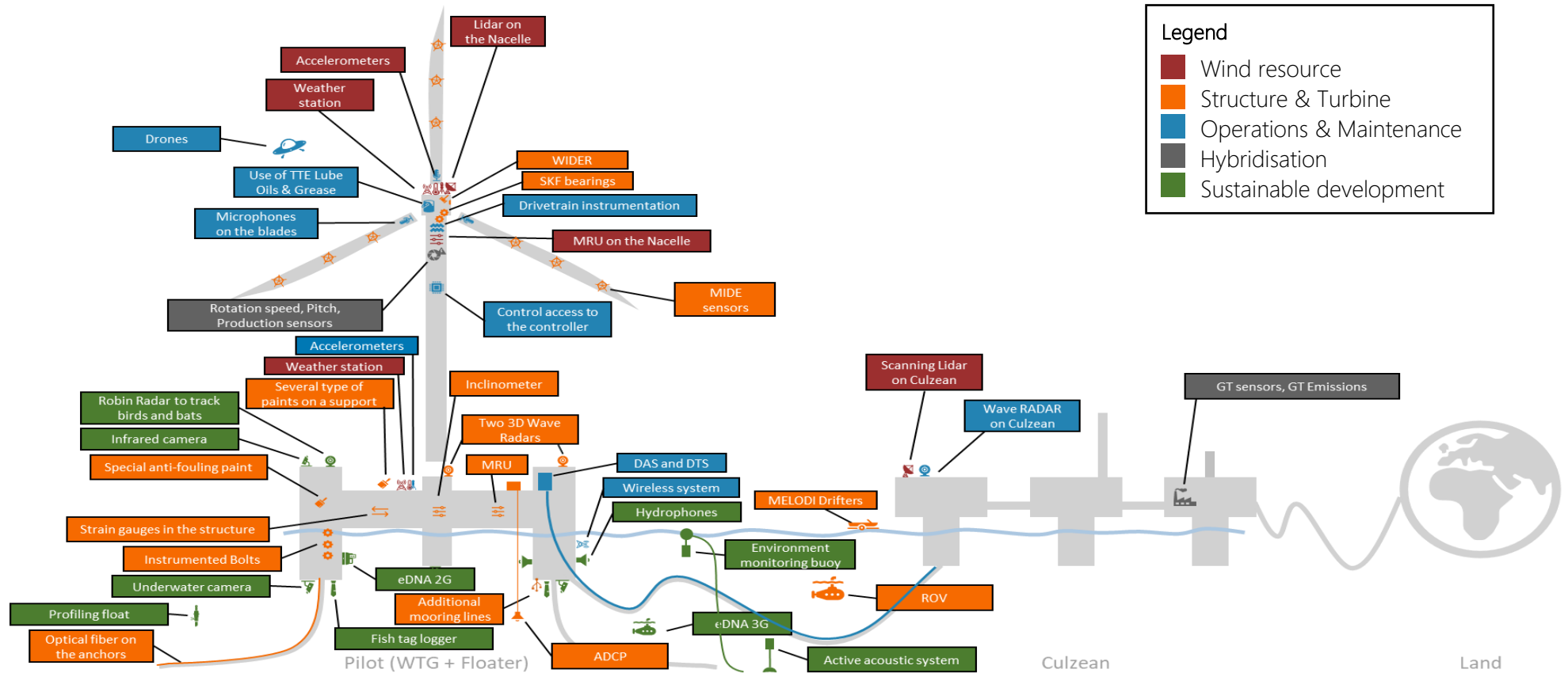


Figure 1-2 The Culzean R&D Programme

## 1.5 EIA Approach

As TEPNSUK is proposing to install the Project with a capacity of 3 MW in Scottish Offshore Waters, the following Marine Licence is required from the Scottish Ministers:

- Marine Licence under the Marine and Coastal Access Act 2009 (developments between 12 and 200 nm).

The Application will cover the installation, operation and maintenance of the floating WTG, its moorings, and the export cable to the Culzean platform. Under the Marine Works Environmental Impact Assessment Regulations 2007 (UK Government, 2007), the Project has submitted an EIA to assess and understand the potential environmental and social impacts of the proposed activities. Decommissioning activities will be addressed under a separate marine licence application at the time of decommissioning and in line with an approved Decommissioning Programme.

TEPNSUK is responsible for the submission of the Application TEPNSUK has appointed Xodus Group Limited (Xodus) as lead EIA consultant to produce the EIAR. The Xodus EIA team has been supported by independent and suitably qualified subcontractors. In line with the requirements of the EIA Regulations (UK Government, 2007), Table 1-1 provides a summary of the relevant expertise and experience of the technical consultants involved in preparing this EIAR.

Table 1-1 Specialist consultants in the EIA team

TECHNICAL SPECIALISM	CONSULTANT	RELEVANT EXPERTISE AND EXPERIENCE
<b>Introductory and summary chapters</b>	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 delivery, 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.
<b>Marine Physical Processes</b>	Xodus	Lead author Dr Anna Chaffey 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.
<b>Benthic Ecology</b>	Xodus	<p>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.</p> <p>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 Vehicle (ROV) / Drop Down Video (DDV) 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.</p>
<b>Fish and Shellfish Ecology and Marine Mammals and Other Megafauna</b>	Xodus	Lead author, Dr Ewan Edwards, has 15 years of experience in marine research, government, and consultancy roles, across a range of disciplines including offshore energy and marine infrastructure Environmental Impact Assessment, as well as applied research. Having specialised in marine predator ecology (seals, cetaceans and seabirds), he has subsequently developed a broad range of cross-receptor knowledge including marine and diadromous fish ecology, benthic ecology and physical processes. He has practical experience of a range of survey methods and assessment tools, including acoustic and satellite telemetry, GIS, population assessments, passive acoustic monitoring, aerial and boat-based surveys, bottom-trawl fish surveys, sediment sampling and towed / drop-down camera surveys.



**TECHNICAL SPECIALISM    CONSULTANT    RELEVANT EXPERTISE AND EXPERIENCE**

Prior to joining Xodus he spent seven years in the Science division of Marine Scotland (now the Marine Directorate), the Scottish Government's directorate of marine affairs, as a research scientist and adviser to the Scottish marine industries regulator. For two years he was Renewables Science Advice Leader, where he led the provision of technical advice on EIA, Habitats Regulation Appraisal (HRA), Marine Licence and Section 36 Consent applications and other environmental reports for a wide range of infrastructure projects.

Ewan joined Xodus in August 2022, as a Principal Environmental Consultant in the Environment division, where he contributes his technical knowledge and expertise in marine ecology across a range of proposals and projects, including: Innovation and INTOG wind farm proposals; ScotWind offshore wind projects in Scottish waters; marine mammal impact assessments for tidal energy developments; underwater noise assessments for offshore wind projects; consenting and permitting risk assessment / due diligence and subsea cable installation projects

**Commercial Fisheries**

Xodus

Lead author Femke de Boer completed her Master of Science 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 (SWFPA). 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 INTOG projects. She was also involved in both Commercial Fisheries Working Groups, The Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW), Scottish Marine Energy Research (ScotMER) Fish and Fisheries Group and the International Council for the Exploration of the Sea (ICES) Working Group on Offshore Wind Development and Fisheries. Since joining Xodus in November 2021, 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 (FLO) 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, Dr Deborah Morgan, has 15 years of experience in the environmental sector; ten of these years have been focused on environmental support for oil and gas development and decommissioning projects. Deborah has spent time on secondment at Canadian Natural Resources, managing the environmental aspects of several live, high-profile decommissioning projects and has also supported the third-party review of several renewables Decommissioning Programmes on behalf of Marine Scotland. Her management and technical experience encompass Environmental Statements (ES), Environmental Appraisals (EA), EIARs, Comparative Assessment (CA), Environmental Risk Identification (ENVID), energy and emissions analysis and drill cuttings assessment. She has also managed the submission of offshore environmental permit applications via the Department for Energy Security and Net Zero (DESNZ) Portal Environmental Tracking System (PETs). Deborah also has experience in the renewables and remote sensing sectors, having coordinated aerial and ground-based surveys for offshore wind, wave and tidal projects, seabird and marine mammal surveys and onshore river corridor surveys.



TECHNICAL SPECIALISM	CONSULTANT	RELEVANT EXPERTISE AND EXPERIENCE
Ornithology	Atlantic Ecology	<p>Atlantic Ecology is a consultancy based in central Scotland that undertakes a wide range of ecological work, with a focus on applied ornithology relating to renewable energy projects. They provide independent and impartial advice and other services to industry, government agencies and the third sector. Atlantic Ecology have many years of experience working on a diverse portfolio of terrestrial and marine EIA and ecological research studies, both in the UK and overseas.</p> <p>Lead author, Dr Digger Jackson has over ten years of experience working as a senior consultant for a leading Scottish-based consultancy. Before this Digger accrued 15 years' experience working in conservation science research for wildlife Non- Governmental Organisations (NGOs). Digger has considerable consultancy experience with large-scale renewable energy projects in the UK and overseas. His experience includes leading on the ornithology surveys and impact assessment studies for nine tidal stream array projects, two wave array projects, three offshore wind farms and several terrestrial wind farms. Digger has authored numerous reports and peer reviewed papers on the EIA studies and research he has undertaken. He is also the lead author of Scottish Natural Heritage's (now NatureScot) bird survey and monitoring guidance for marine renewable developments.</p>
Shipping and Navigation	Anatec	<p>Anatec has extensive experience of carrying out Navigational Risk Assessment (NRA) 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 Offshore Wind Farms (OWFs).</p> <p>Lead author is Sam Westwood, who 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 developments, and has extensive knowledge in offshore health &amp; safety management and specialising in renewable energy developments. Sam provides services with regards to marine regulation, health and safety management and risk assessment advice for management of offshore operations.</p>
Marine Archaeology	Wessex Archaeology	<p>Wessex Archaeology is the UK's leading provider of archaeological and heritage services, and an educational charity. Established for 40 years, Wessex Archaeology offers an unrivalled range of services above ground, below ground and underwater, delivered by over 320 industry experts from an international network of offices. They work in partnership with clients to deliver practical, sustainable solutions to effectively manage the historic environment.</p> <p>Lead author, Andrew Bicket is a Senior Project Manager at Wessex Archaeology, who coordinates and delivers a wide range of archaeological and cultural heritage services within the marine sector. He joined Wessex Archaeology's Coastal &amp; Marine Division in 2010. He leads on the provision of services for marine interconnector cables and has substantial experience of offshore wind, marine aggregates, wave &amp; tidal and ports &amp; harbours sectors across the British Isles.</p>

**TECHNICAL SPECIALISM    CONSULTANT    RELEVANT EXPERTISE AND EXPERIENCE**

**Aviation and Radar**

Coleman  
Aviation

Coleman Aviation Ltd was set up to provide independent consultancy services to the wind farm industry on aviation issues. Wing Commander Mike Coleman has over 27 years' experience working in Air Traffic Control (ATC) and Air Defence (AD) operational teams for the Ministry of Defence (MoD). Over the past five years Coleman Aviation Ltd has provided advice to numerous wind farm developers in resolving wind farm-related aviation issues and EIA Support.

**QUALITY IS INTEGRAL TO XODUS EIA DELIVERY**

Xodus Group, as an accredited member of IEMA, are independently recognised for producing high standard EIARs 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.



## 1.5.1 Structure of the EIAR

Table 1-2 outlines the proposed structure of this EIAR the environmental topics that have been scoped in for EIA are included in Chapters 7 to 16 and are shown in **bold text**. Each topic impact assessment chapter details the impacts or receptors that have been scoped out of the assessment for each specific aspect.

Table 1-2 Proposed structure for the EIAR

CHAPTER	TITLE	PRIMARY AUTHOR
<b>Volume I: Non-Technical Summary</b>		Xodus
<b>Volume II: EIAR</b>		
1	Introduction	Xodus
2	Legislation and Policy	Xodus
3	Site Selection and Consideration of Alternatives	Xodus
4	Project Description	Xodus
5	Stakeholder Engagement	Xodus
6	EIA Methodology	Xodus
7	<b>Marine Physical Processes</b>	Xodus
8	<b>Benthic Ecology</b>	Xodus
9	<b>Fish and Shellfish Ecology</b>	Xodus
10	<b>Marine Mammals and Other Megafauna</b>	Xodus
11	Ornithology	Atlantic Ecology
12	Commercial Fisheries	Xodus
13	Shipping and Navigation	Anatec
14	Aviation and Radar	Coleman Aviation
15	Marine Archaeology	Wessex Archaeology
16	<b>Other Sea Users</b>	Xodus
17	Conclusions	Xodus
<b>Volume III: Appendices</b>		
<b>Appendix A</b>	Carbon Assessment	Xodus

CHAPTER	TITLE	PRIMARY AUTHOR
<a href="#">Appendix B</a>	Consideration of Major Accidents and Disasters	Xodus
<a href="#">Appendix C</a>	Habitat Assessment Survey Report	Ocean Infinity
<a href="#">Appendix D</a>	Environmental Baseline Survey Report	Ocean Infinity
<a href="#">Appendix E</a>	Environmental DNA Report	NatureMetrics
<a href="#">Appendix F</a>	Ornithological and Marine Mammal Baseline Characterisation	APEM
<a href="#">Appendix G</a>	Culzean Topsides Ornithology (Nesting Bird) Surveys	Xodus
<a href="#">Appendix H</a>	Ornithology Displacement Analysis and Collision Risk Modelling	Atlantic Ecology
<a href="#">Appendix I</a>	Navigational Risk Assessment	Anatec
<a href="#">Appendix J</a>	Geophysical Survey Report	Ocean Infinity
<a href="#">Appendix K</a>	Archaeological Assessment of Geophysical Data	Wessex Archaeology

Following receipt of the Scoping Opinion (Scottish Government, 2023) and in line with the response from the Scottish Ministers and the statutory and non-statutory consultees, water and sediment quality, Seascape and Landscape Visual Impact Assessment (SLVIA), air quality and airborne noise, and socioeconomics have been scoped out of further consideration with justifications provided in Chapter 6: EIA Methodology.

Climate change is not considered as a stand-alone chapter. In line with the Scoping Opinion, consideration of the positive effects for biodiversity and nature inclusive design are integrated into the relevant project EIA chapters. A Carbon Assessment is also provided in [Appendix A](#): Carbon Assessment as requested by the Scottish Ministers.

In line with the Scoping Opinion, consideration of any potential Major Accidents and Disasters area also included in [Appendix B](#): Consideration of Major Accidents and Disasters.

## 1.5.2 Baseline Characterisation

To support the EIA, existing data sets and literature with relevant Project coverage have been used to form an environmental and social baseline throughout this EIAR. TEPNSUK has also commissioned several independent supporting studies to enhance understanding of the environmental and social setting of the Project and which are included in the remaining appendices. These include:

- [Appendix C](#): Culzean WTG Site Survey **Habitat Assessment Survey Report**. (Ocean Infinity, 2023) presents the environmental conditions from the Culzean WTG Site Survey based on video and still images along with field descriptions and Particle Size Analysis (PSA) results of the grab samples.
- [Appendix D](#): Culzean WTG Site Survey **Environmental Baseline Survey Report** (EBS) (Ocean Infinity, 2023) describes characteristics and conditions of a set of measurable parameters to provide a baseline for impact evaluation and mitigation.

- **Appendix E: Environmental DNA Report** (NatureMetrics, 2023) presents the analysis of eDNA samples in water and sediment
- **Appendix F: Culzean Ornithological and Marine Mammal Baseline Characterisation Surveys** (APEM, 2024) summarising 12 months of Digital Aerial Survey (DAS) data.
- **Appendix G: Culzean Topsides Ornithology (Nesting Bird) Surveys** (Xodus, 2023) assessing the presence of nesting birds on the Culzean platform.
- **Appendix H: Ornithology Displacement Analysis and Collision Risk Modelling** (Atlantic Ecology, 2024) presenting the displacement matrices for kittiwake, common guillemot and razorbill and the input parameters and model outputs for Collision Risk Modelling for gannet, kittiwake, great black-backed gull and herring gull.
- **Appendix I: Navigational Risk Assessment** incorporating a hazard workshop and 12 months of Automatic Information Systems (AIS) data (2022 – 2023) for the Project location.
- **Appendix J: Geophysical Survey Report** (Ocean Infinity, 2023) including Sub-Bottom Profiling (SBP), Side Scan Sonar (SSS), magnetometer and Multibeam Echosounder (MBES) techniques.
- **Appendix K: Archaeological Assessment of Geophysical Data** (Wessex Archaeology, 2024).

### 1.5.3 Habitats Regulations Appraisal

There is also a requirement to consider the potential impacts of plans and projects on European sites, under the ‘Conservation of Offshore Marine Habitats and Species Regulations 2017’ (The Habitat Regulations; European Commission, 1992), which are applicable to Marine Licence applications between the 12 and 200 nm limits. The Habitat Regulations are in place to protect European sites. As the UK is no longer part of the European Union (EU), amendments were made to the Habitats Regulations in Scotland to ensure that they continue to work in the same manner. Further detail on this is provided in Chapter 2: Legislation and Policy.

TEPNSUK has therefore also commissioned Xodus to undertake an assessment under the Habitats Regulations to consider the impact of the Project on the following European sites and their specific conservation objectives:

- Special Areas of Conservation (SACs),
- candidate SACs (cSACs),
- Special Protection Areas (SPAs),
- potential SPAs (pSPAs),
- Sites of Community Importance (SCI); and
- Ramsar sites.

TotalEnergies (in agreement with Marine Directorate – Licensing Operations Team (MD-LOT) and NatureScot) have submitted a combined HRA Report which includes the HRA Screening and a Report to Inform Appropriate Assessment (RIAA) stages of the HRA. The HRA Screening portion of the Report undertakes a high level assessment of the potential for Likely Significant Effects (LSE) to European Sites caused by the Project. European sites were screened out at this stage where no potential for LSE was concluded from the Project on a European Site. Where the potential for LSE could not be discounted, these European sites were taken forward for further assessment within the RIAA, to ascertain any Adverse Effects on Site Integrity (AEOSI) for the European Sites screened in. Full details of the HRA for the Project are provided in the HRA Report (Document ID: GB-CZN-00-XODUS-000023), which has been submitted alongside the Application to the Competent Authority.

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