



TotalEnergies E&P North Sea UK Ltd

Culzean Floating Offshore Wind Turbine Pilot Project Environmental Impact Assessment Report – Chapter 16 - Other Sea Users

ASSIGNMENT A100811-S02
DOCUMENT GB-CZN-00-XODUS-000018



Aberdeen

5th Floor, Capitol Building
429-431 Union Street
AB11 6DA . UK

T +44 1224 219 955
E deborah.morgan@xodusgroup.com
www.xodusgroup.com



REVISIONS & APPROVALS

This report has been prepared by Xodus Group exclusively for the benefit and use of TotalEnergies E&P North Sea UK Ltd. Xodus Group expressly disclaims any and all liability to third parties (parties or persons other than TotalEnergies E&P North Sea UK Ltd) which may be based on this report.

The information contained in this report is strictly confidential and intended only for the use of TotalEnergies E&P North Sea UK Ltd. This report shall not be reproduced, distributed, quoted or made available – in whole or in part – to any third party other than for the purpose for which it was originally produced without the prior written consent of Xodus Group.

The authenticity, completeness and accuracy of any information provided to Xodus Group in relation to this report has not been independently verified. No representation or warranty express or implied, is or will be made in relation to, and no responsibility or liability will be accepted by Xodus Group as to or in relation to, the accuracy or completeness of this report. Xodus Group expressly disclaims any and all liability which may be based on such information, errors therein or omissions therefrom.

A01	21/02/2024	Issued for Use	CF	DM	DM	TEPNSUK
REV	DATE	DESCRIPTION	ISSUED	CHECKED	APPROVED	CLIENT

CONTENTS

GLOSSARY	4
ACRONYMS AND ABBREVIATIONS	5
16 OTHER SEA USERS	7
16.1 Introduction	7
16.2 Legislation, policy and guidance	7
16.3 Scoping and consultation	8
16.3.1 Study Area	9
16.3.2 Data sources	11
16.3.3 Existing baseline	11
16.3.4 Future baseline	16
16.3.5 Summary and key issues	16
16.3.6 Data gaps and uncertainties	16
16.4 Key Parameters for Assessment	17
16.5 Methodology for Assessment of Effects	20
16.6 Embedded Mitigation	21
16.7 Assessment of Impacts	22
16.7.1 Potential effects during construction	22
16.7.2 Potential effects during operation and maintenance	24
16.7.3 Potential effects during decommissioning	25
16.7.4 Summary of potential effects	25
16.8 Proposed Monitoring	28
16.9 Cumulative Effects Assessment	28
16.10 Inter-Related Effects	28
16.11 Transboundary Effects	29
16.12 Summary of Impacts and Mitigation Measures	29
REFERENCES	30

GLOSSARY

TERMINOLOGY	DESCRIPTION
Culzean Floating Offshore Wind Pilot Project (the 'Project')	The entire Development including all offshore components and all project phases from pre-construction to decommissioning.
Environmental Impact Assessment (EIA)	The procedure to predict, minimise, measure and, if necessary, correct and compensate the impacts produced by any human action.
EIA Regulations	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.
Habitats Regulations Assessment (HRA)	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)
Innovation and Targeted Oil and Gas (INTOG)	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.
Marine Licence Application ('the Application')	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.
Maximum Design Scenario (MDS)	The maximum range of design scenarios for all infrastructure.
Net Zero	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.
Project Design Envelope (PDE)	Maximum range of design parameters of all infrastructure assessed as in the EIA.
Study Area	Receptor specific area used to characterise the baseline.
Project Area	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.
Floating Wind Turbine Generator (WTG)	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
ALARP	As Low As Reasonably Practicable
BEIS	Department for Business, Energy and Industrial Strategy
BT	British Telecom
BP	British Petroleum
CCS	Carbon Capture and Storage
CES	Crown Estate Scotland
CNS	Central North Sea
CNSE	Central North Sea Electrification
DGC	Defence Geographic Centre
EEA	European Economic Areas
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMF	Electromagnetic Fields
ESCA	European Subsea Cables Association
ETAP	Eastern Trough Area Project
FSO	Floating, Storage and Offloading
HSE	Health and Safety Executive
ICPC	International Cable Protection Committee
INTOG	Innovation and Targeted Oil and Gas
KIS-ORCA	Kingfisher Information Service – Offshore Renewable & Cable Awareness project
km	Kilometre
m	Metre
MD-LOT	Marine Directorate – Licensing Operations Team
MDS	Maximum Design Scenario
MoD	Ministry of Defence
NSTA	North Sea Transition Authority
NMP	National Marine Plan
NMPi	National Marine Plan Interactive
NtM	Notice to Mariners
OESEA4	Offshore Energy Strategic Environmental Assessment 4
Ofcom	Office of Communications

ACRONYM/ ABBREVIATION	DEFINITION
OGUK	Oil and Gas United Kingdom
PDE	Project Description Envelope
PEXA	Practice and Exercise Areas
TCE	The Crown Estate
TEPNSUK	TotalEnergies E&P North Sea UK Ltd
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
UKHO	United Kingdom Hydrographic Office
VHF	Very High Frequency
WTG	Wind Turbine Generator
ZoI	Zones of Influence

16 OTHER SEA USERS

16.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) presents the Other Sea User receptors of relevance to the Culzean Floating Offshore Wind Turbine Pilot Project (the 'Project') and assesses the potential impacts from the construction, operation and maintenance and decommissioning of the Project on these receptors. Where required, mitigation is proposed, and the residual impacts and their significance are assessed. Potential cumulative impacts are also considered while transboundary impacts have been scoped out with the agreement of Scottish Ministers.

Xodus Group Limited (Xodus) have drafted and carried out the impact assessment. Further competency details of the Project Team including lead authors for each chapter are provided in Chapter 1: Introduction.

The assessment presented within this chapter draws upon information presented within other impact assessments within this EIAR, including:

- Chapter 12: Commercial Fisheries, which assesses impacts on the fishing industry; and
- Chapter 13: Shipping and Navigation – which assesses impacts on recreational boating, ferry services, third-party vessels, including those associated with nearby assets / activities, and subsea military operations.

Where information is used to inform the impact assessment for Other Sea Users, reference to the relevant EIAR chapter is given. Impacts relating to fishing activity are not discussed in this chapter but are the focus of Chapter 12: Commercial Fisheries.

16.2 Legislation, policy and guidance

The following legislation, policy and guidance are relevant to the assessment of impacts from the Project on Other Sea Users:

- Legislation:
 - Health and Safety Executive (HSE) Offshore Installations and Pipeline Works (Management and Administration) Regulations 1995.
 - Applies to offshore installations including production and non-production installations, including activities connected to offshore installations and wells. Compliance with this regulation includes the establishment of suitable safety exclusion zones around all connected infrastructure.
- Policy:
 - Scotland's National Marine Plan (NMP) (Scottish Government, 2015):
 - Provides sector-specific information and guidance relevant for the interaction between other users of the marine environment and an offshore renewable energy development. GEN-1 General Planning Principle and GEN-4 Co-existence represent general policies relevant to Other Sea Users. The Other Sea Users may include:
 - Aquaculture;
 - Oil and gas activities, including carbon capture and storage;
 - Offshore wind and marine renewable energy;

- Recreation and tourism;
 - Submarine cables; and
 - Military and defence activities.
- Guidance:
 - Assessment of Impact of Offshore Wind Energy Structures on the Marine Environment (Marine Institute, 2000);
 - European Subsea Cables Association (ESCA) Guideline No 6, The Proximity of Offshore Renewable Energy Installations and Submarine Cable Infrastructure in United Kingdom (UK) Waters (ESCA, 2016) (currently being updated);
 - International Cable Protection Committee (ICPC) Recommendations (ICPC, 2019);
 - Oil and Gas United Kingdom (OGUK), Pipeline Crossing Agreement and Proximity Agreement Pack (OGUK, 2015);
 - The Crown Estate (TCE) Guidance: Export transmission cables for offshore renewable installations – Principles of cable routing and spacing (TCE, 2012a);
 - TCE Guidance: Submarine cables and offshore renewable energy installation – Proximity Study (TCE, 2012b);
 - Electromagnetic Fields (EMFs) from subsea power cables in the natural marine environment (Gill *et al.*, 2023); and
 - Tall structures and their impact on broadcast and other wireless services (Office of Communications; Ofcom, 2009).

16.3 Scoping and consultation

The Other Sea Users baseline of the Project was characterised through a desktop study, supplemented with data received during consultation. Stakeholder consultation has been ongoing throughout the Environmental Impact Assessment (EIA) and has played an important part in ensuring the scope of the baseline characterisation and impact assessment are appropriate with respect to the Project and the requirements of the regulators and their advisors.

The Scoping Report was submitted to Scottish Ministers (Via Marine Directorate – Licensing Operations Team (MD-LOT)), on 14th April 2023, who then circulated the report to relevant consultees. The Scoping Opinion was received on 20th July 2023. Relevant comments from the Scoping Opinion and other consultation specific to Other Sea Users are provided in Table 16-1, which also provides a response explaining how these comments have been addressed within the EIA.

Table 16-1 Summary of Scoping Opinion and responses specific to Other Sea Users

CONSULTEE	COMMENT	RESPONSE
Scoping Opinion		
Scottish Ministers / British Telecom (BT)	The Scottish Ministers, in line with the British Telecom (BT) representation, are content that the Proposed Development should not interfere with any current or planned radio network. The Developer must inform BT of the grid reference coordinates and number of WTGs once confirmed.	The grid reference coordinates will be sent to BT upon confirmation. It can be confirmed that the Project will only include a single Wind Turbine Generator (WTG).
Tampnet	It can be confirmed that we have nothing to add or indeed any immediate concerns regards the Project.	Noted, no response needed.

In line with the Scoping Opinion, aspects relevant to Other Sea Users but scoped out of further assessment in this EIAR include:

- Obstruction of military Practice and Exercise Areas (PEXA) activities due to the presence of safety zones and construction vessels during all Project phases;
- Obstruction of recreational and tourism activities during all Project phases; and
- Obstruction of aquaculture activities during all Project phases Baseline Environment.

16.3.1 Study Area

The Study Area encompasses the extent that users of the sea may be directly impacted by the infrastructure (including WTG), floating substructure, associated moorings, and the export cable). Given the small scale of the Project and the anticipated short construction and decommissioning timescales (< 1 month), a buffer of 10 kilometre (km) has been estimated around the Project location (Figure 16-1) to represent the maximum extent of the influence either from, or on Other Sea Users (Figure 16-1).

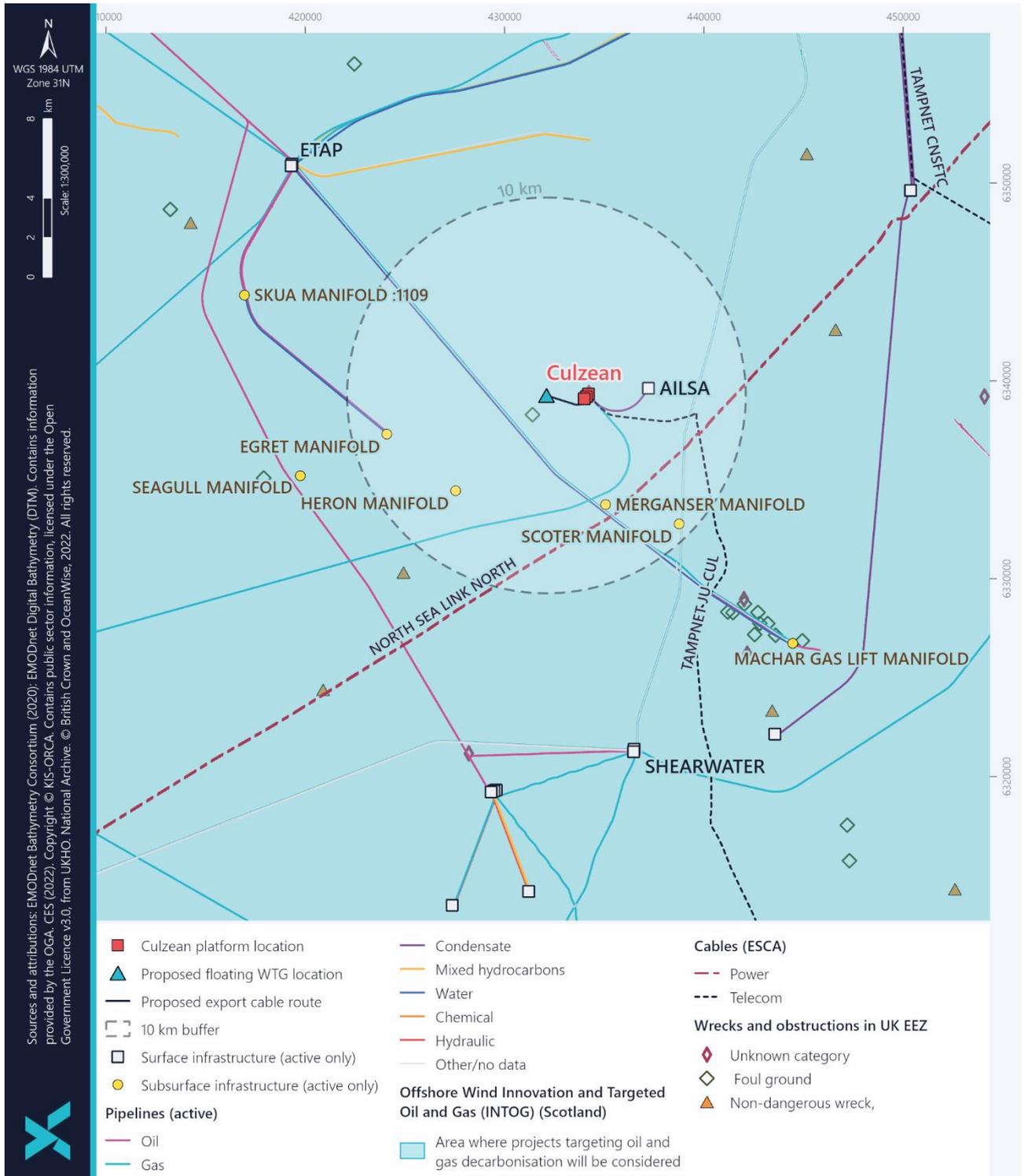


Figure 16-1 Other Sea Users Study Area

16.3.2 Data sources

No site-specific surveys with regards to Other Sea Users were required. The information obtained through consultation on the Scoping Report along with desktop studies and publicly available data sources was sufficient to enable a robust impact assessment.

The data sources which have been used to inform the baseline characterisation are outlined in Table 16-2.

Table 16-2 Summary of key datasets and reports

TITLE	SOURCE	AUTHOR	YEAR
UK Offshore Energy Strategic Environmental Assessment 4 (OESEA4) Appendix 1h: Other Users and Material Assets	https://www.gov.uk/government/consultations/uk-offshore-energy-strategic-environmental-assessment-4-oesea4	Department for Business, Energy and Industrial Strategy (BEIS)	2022
Energy and Infrastructure Spatial Data	https://www.crownstatescotland.com/resources/documents	Crown Estate Scotland (CES)	2022
Kingfisher Information Service – Offshore Renewable & Cable Awareness project (KIS-ORCA)	https://kis-orca.org/subsea-cables/	KIS-ORCA	2023
National Marine Plan Interactive (NMPi)	https://marinescotland.atkinsgeospatial.com/nmpi/	Marine Scotland	2023
Offshore Oil and Gas Activity Interactive Map	https://nstaauthority.maps.arcgis.com/apps/webappviewer/index.html?id=cb3474a78df24139b1651908ff8c8975	North Sea Transition Authrotiy (NSTA)	2023

16.3.3 Existing baseline

An initial desk-based review of literature and available data sources has been undertaken to support this EIA chapter. The findings of this research are presented below to provide an understanding of the Project environment.

The key features of Other Sea Users present in or around the Study Area are:

- Oil and gas activities;
- Submarine cables; and
- Communications.

16.3.3.1 Oil and gas activities

The Project is located in the Central North Sea (CNS), a well-developed area for oil and gas infrastructure (BEIS, 2022). This includes pipelines, wells, and surface and subsurface structures.

Culzean Floating Offshore Wind Turbine Pilot Project

Environmental Impact Assessment Report



TotalEnergies E&P North Sea UK Ltd (TEPNSUK) is currently the primary operator of the United Kingdom Continental Shelf (UKCS) Block in which the Project is located (22/25a). However, other operators including Harbour Energy, British Petroleum (BP) Exploration, Shell PLC and Neo Energy Group also have a stake in UKCS Block 22/25a. There are no other existing surface installations associated with the Project (Table 16-3). The only surface installation which lies within the 10 km radius Study Area is the Ailsa Floating, Storage and Offloading (FSO), approximately 5.2 km east of the WTG location, which is linked to the Culzean platform via existing subsea infrastructure operated by TEPNSUK (Figure 16-1 and Table 16-3).

Most of the existing subsea infrastructure within the Study Area relates to oil and gas activities. There are several subsea wells (both active and decommissioned) associated with the Culzean Field that are located within the Study Area. There are also several pipelines that transect the Study Area. The pipelines are listed in Table 16-4 along with their respective distance to the Culzean WTG location (NSTA, 2023). The subsea facilities at the adjacent Merganser and Scoter fields (approximately 6.2 km south-southeast and 9.2 km south east of the Project, respectively; Figure 16-1) are currently being decommissioned, with the relevant Decommissioning Programmes having been approved in September 2022 (Shell, 2022). Decommissioning is anticipated to be complete in Q4, 2026.

Of the pipelines listed in Table 16-4, the Culzean 6/10" Condensate Pipe-In-Pipe links the Culzean platform to the Ailsa FSO and is the nearest active pipeline transecting the Study Area.

Table 16-3 Oil and gas installations Within the Study Area (NSTA, 2023)

INSTALLATION	OPERATOR	DISTANCE FROM CULZEAN WTG LOCATION
Culzean platform complex	TEPNSUK	2 km east
Ailsa FSO	TEPNSUK	5.2 km east
Merganser subsea infrastructure and wells	Shell	6.2 km south-southeast
Scoter subsea infrastructure and wells	Shell	9.2 km southeast
Heron subsea infrastructure and wells	BP Exploration	7 km southwest

Table 16-4 Pipelines within 18 km of the Project (NSTA, 2023)

PIPELINE	STATUS	OPERATOR	DISTANCE FROM WTG LOCATION (CLOSEST POINT)
Culzean 6-10" Condensate Pipe-In-Pipe and 4" gas flowline	Active	TEPNSUK	2.1 km east
Culzean 22" Gas Export Flowline	Active	TEPNSUK	2.2 km east

PIPELINE	STATUS	OPERATOR	DISTANCE FROM WTG LOCATION (CLOSEST POINT)
Eastern Trough Area Project (ETAP) To Machar pipelines and umbilicals	Active	BP Exploration	2.1 km to 2.3 km west
Scoter to Merganser manifold pipelines and umbilicals	Not in use*	Shell Plc	6.2 km to 6.3 km
Egret to Heron pipelines and umbilicals	Not in use*	BP Exploration	6.5 to 6.6 km southwest
Shearwater - Columbus Tie-In Structure pipeline and umbilical	Active	Shell Plc	7.2 km east
Skua to Egret Pipelines and Umbilicals	Active	Neptune E&P UK Ltd	8.2 km west-southwest
Seagull Wash Water and production pipeline	Active	Neptune E&P UK Ltd	8.2 km west-southwest
Scoter to Shearwater pipelines and umbilicals	Not in use*	Shell Plc	9.2 to 9.3 km southeast

* These pipelines are no longer in use as one or more of the fields they are connected to are no long producing

16.3.3.2 Submarine Cables

There are numerous submarine cables within the North Sea. These cables are used for telecommunications and the transfer of power from onshore to offshore assets, and between Scotland and neighbouring countries (BEIS, 2022).

The Active TAMPNMET telecommunications cable transects the Project Area and is the nearest submarine cable. The cable will intersect the proposed export cable route between the WTG and the Culzean platform (KIS-ORCA, 2023). The North Sea Link Interconnector is located 5 km southeast of the Project at its closest point. Both these cables are currently active (KIS-ORCA, 2023).

Future awards made under the Innovation and Targeted Oil and Gas (INTOG) leasing round may result in the application and development of additional cables routes and developments within or in proximity of the Study Area. This is further discussed in Section 16.7.

16.3.3.3 Interference with communication

Due to the production of low levels of electromagnetic radiation, WTGs can also affect communication systems that utilise electromagnetic waves as their means of transmission. The rotating blades of WTGs can also cause interference through reflection and shadowing of electromagnetically propagated radio signals.

Maritime communications devices within the scope of this assessment include cellular telephones, satellite communications, Very High Frequency Radio (VHF) radio, television, and offshore microwave fixed links. Cellular telephone service providers are unlikely to provide coverage for users located in the vicinity of the Project, which means that interference to services is unlikely.

The Ofcom Tall Structures guidance indicates that the principal impact of new structures, such as WTGs, upon satellite television is potentially blocking the signal between the receiver and the satellite (Ofcom, 2009). Satellite signals are



generally received from a high elevation; this means that disruption to satellite reception is usually limited only to cases where a receiver is very close to a tall structure (e.g. a ship passing near a WTG).

In terms of other Sea Users beyond the Study Area (and therefore scoped out of this baseline):

- The nearest Carbon Capture and Storage (CCS) lease area is the CNS Area 1, located approximately 112 km north of the Project; and
- There are no offshore wind developments, lease areas or leasing agreements for wave and tidal energy developments within the vicinity of the Study Area (Marine Scotland, 2023). The Project does however form part of the INTOG leasing round and is consequently located within the INTOG E-a area (Marine Scotland, 2023). The closest INTOG lease site is the Cenos development, located approximately 17.5 km west of the Project WTG (Figure 16-2).

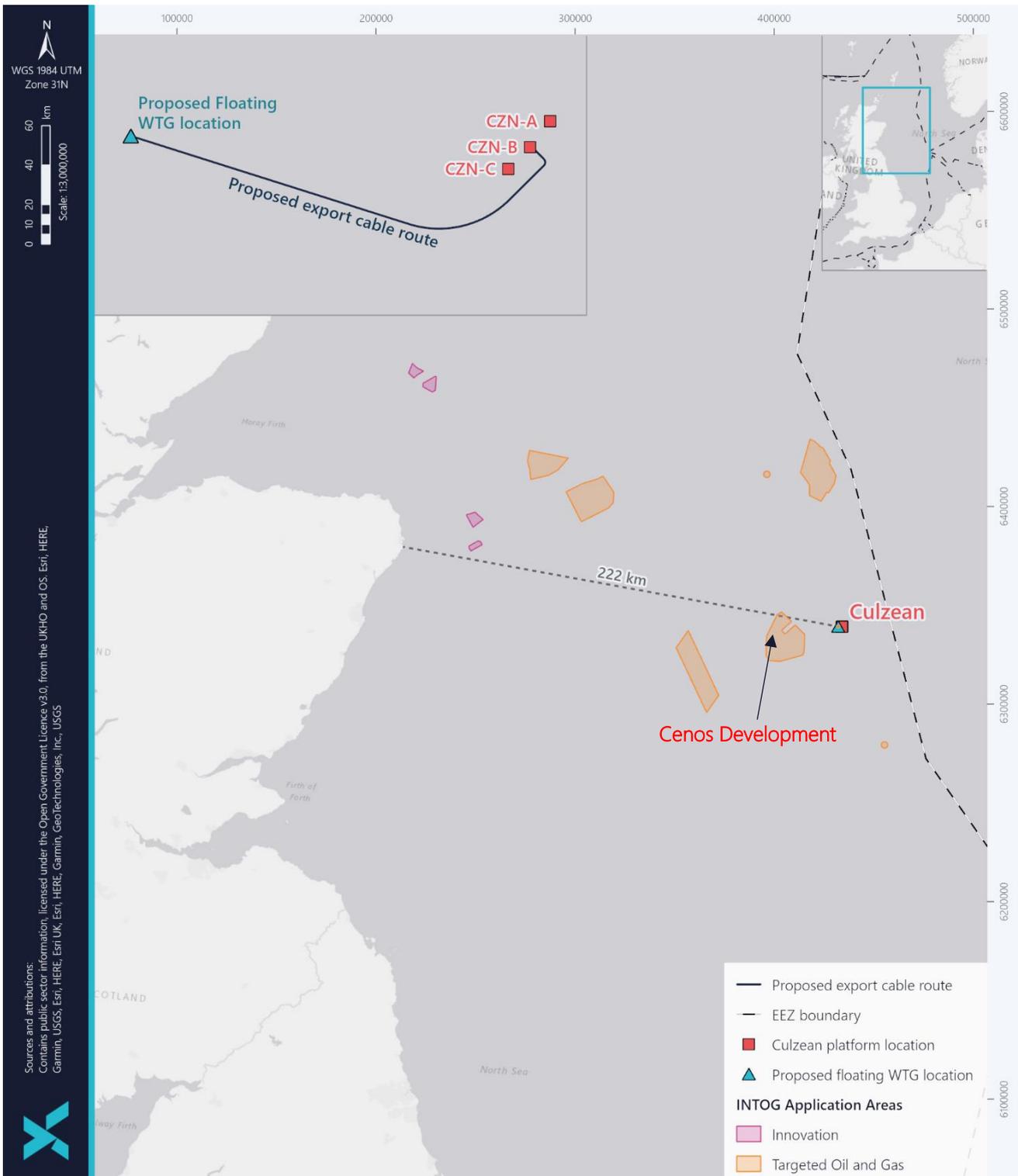


Figure 16-2 North Sea INTOG Areas

16.3.4 Future baseline

The future baseline for Other Sea Users is subject to change as developments associated with industries discussed in Section 16.3.3 are either proposed, constructed or decommissioned.

The Project lies in an area of extensive oil and gas development and decommissioning in the CNS which will continue into the future (BEIS, 2022). As discussed in Section 16.3.3, the subsea facilities at the adjacent Merganser and Scoter fields are currently being decommissioned. Decommissioning activities are expected to continue until 2027 but as this has already been factored into the current baseline, concurrent activities are not expected to significantly alter the future baseline in relation to Other Sea Users. Whilst no other oil and gas facilities in the vicinity of the Project have submitted and/or approved decommissioning programmes in place, it is likely that further decommissioning will take place and overlap with the operational life of the Project. This has also been considered.

These future uses have been considered within this impact assessment. Despite the future developments discussed here, the future baseline is broadly comparable to the current Project. It is acknowledged that the future baseline is subject to gradual change as new developments / plans are proposed and progressed. The baseline will evolve with or without the Project being in place.

16.3.5 Summary and key issues

In summary, multiple Other Sea Users receptors have potential sensitivities to the Project which have been identified as requiring further consideration within this impact assessment. The key Other Sea Users receptors and key issues which have been taken forward for assessment include:

- Oil and gas developments within the Study Area;
- Ongoing and future decommissioning activities at Merganser and Scoter fields;
- The presence of cables within the Study Area; and
- Interference with communication.

16.3.6 Data gaps and uncertainties

The baseline environment has been established through an extensive review of the available data sources and literature (Table 16-2), and information gained through consultation, which are considered to be sufficient. Therefore, there is a robust baseline available to inform the impact assessment and there are no significant data gaps regarding Other Sea Users present in the Study Area. Specific areas of uncertainty within the Study Area include:

- Obstruction to routine oil and gas operations;
- Obstruction of decommissioning works at the Scoter and Merganser fields;
- Obstruction of subsea cable installation activities; and
- Interference with communications.



16.4 Key Parameters for Assessment

As detailed in Chapter 4: Project Description, this assessment considers a Project Design Envelope (PDE), which encompasses a maximum design scenario (MDS) or a worst-case scenario. The MDS represents, for any given receptor and potential impact on that receptor that would result in the greatest potential for change.

Confidence can therefore be held that development of any alternative options within the design parameters will give rise to no worse effects than assessed in this impact assessment. Table 16-5 presents the MDS for potential impacts on Other Sea Users during construction, operation and maintenance and decommissioning.

Table 16-5 Maximum Design Scenario specific to Other Sea Users receptor impact assessment

POTENTIAL IMPACT	MAXIMUM DESIGN SCENARIO (MDS)	JUSTIFICATION
Construction and decommissioning		
<p>Obstruction of routine oil and gas activities operations due to the presence of safety zones and construction vessels.</p>	<p>Potential interference with routine oil and gas activities at nearby platforms and pipelines, causing operational delays and hindering progress.</p>	<p>The Project is located an area of extensive oil and gas assets, which are typically subject to regular maintenance and operational work. During the construction phase of the Project, the creation of safety zones and presence of vessels in the area may limit the area of available sea space. As a worst-case this may disrupt other oil and gas operations or the Project, and result in changes to operational schedules.</p>
<p>Obstruction of the ongoing decommissioning operations at the Scoter and Merganser fields due to the presence of safety zones and construction vessels.</p>	<p>Potential interference with the ongoing decommissioning of the subsea facilities at the Scoter and Merganser fields, causing operational delays and hindering progress for both developments.</p>	<p>The Project is located 5.55 km from the Scoter and Merganser fields which are currently being decommissioned. During the construction phase of the Project, the creation of safety zones and presence of vessels in the area may limit the area of available sea space. As a worst-case this may disrupt decommissioning operations at Scoter and Merganser or installation activities of the Project, and result in changes to operational schedules.</p>
<p>Obstruction of subsea cable installation activities due to the presence of safety zones and construction vessels.</p>	<p>Potential interference with nearby cable installation and maintenance operations, including the construction of two submarine cables.</p>	<p>The Project Area is transacted by three submarine cables, two of which are currently under construction. During the construction phase of the Project, the creation of safety zones and presence of vessels in the area may limit the area of available sea space. As a worst-case this may disrupt operations relating to the Cable installation or maintenance activities and the Culzean Project, resulting in changes to operational schedules.</p>
Operation and maintenance		

POTENTIAL IMPACT	MAXIMUM DESIGN SCENARIO (MDS)	JUSTIFICATION
<p>Disruption of telecommunications during the operation of the WTG due to the production of low levels of electromagnetic radiation.</p>	<p>Interference from the WTG blocking the signal between the receiver and the satellite of marine telecommunication networks (i.e. from nearby vessels and rigs).</p>	<p>The presence of the WTG may interfere with the signal between satellites and maritime receptors as per Ofcom (2009). WTGs have the potential to interfere with marine telecommunication networks. Given the level of extensive oil and gas activity, it is possible that there will be multiple maritime satellite communication networks in the vicinity of the Project.</p>

16.5 Methodology for Assessment of Effects

An assessment of potential impacts is provided separately for the construction, operation and maintenance and decommissioning stages. The assessment for Other Sea Users is undertaken following the principles set out in Chapter 6: EIA Methodology. The sensitivity of the receptor is combined with the magnitude to determine the impact significance. Topic-specific sensitivity and magnitude criteria are assigned based on professional judgement, as described in Table 16-6 and Table 16-7.

Table 16-6 Sensitivity criteria

SENSITIVITY OF RECEPTOR	DEFINITION
High	The receptor has very low capacity to accommodate a particular effect and no ability to recover or adapt.
Medium	The receptor has a low capacity to accommodate a particular effect with a low ability to recover or adapt.
Low	The receptor has some tolerance to accommodate a particular effect or will be able to recover or adapt.
Negligible	The receptor is generally tolerant and can accommodate a particular effect without the need to recover or adapt.

Table 16-7 Magnitude criteria

MAGNITUDE CRITERIA	DEFINITION
High	The impact occurs over a large spatial extent resulting in widespread, long-term, or permanent changes in baseline conditions or affects a large proportion of a receptor population. The impact is very likely to occur and/or will occur at a high frequency or intensity.
Medium	The impact occurs over a local to medium extent with a short- to medium-term change to baseline conditions or affects a moderate proportion of a receptor population. The impact is likely to occur and/or will occur at a moderate frequency or intensity.
Low	The impact is localised and temporary or short-term, leading to a detectable change in baseline conditions or a noticeable effect on a small proportion of a receptor population. The impact is unlikely to occur or may occur but at low frequency or intensity.
Negligible	The impact is highly localised and short-term, with full rapid recovery expected to result in very slight or imperceptible changes to baseline conditions or a receptor population. The impact is very unlikely to occur; if it does, it will occur at a very low frequency or intensity.

The consequence and significance of effect is then determined using the matrix provided in Chapter 6: EIA Methodology.

16.6 Embedded Mitigation

As described in Chapter 6: EIA Methodology, certain measures have been adopted as part of the Project development process to reduce the potential for impacts to the environment (Table 16-8). These have been accounted for in the assessment presented below. The requirement for additional mitigation measures (secondary mitigation) will be dependent on the significance of the effects on Other Sea Users.

Table 16-8 Embedded mitigation measures relevant to Other Sea Users

MITIGATION MEASURE	DESCRIPTION	FORM (PRIMARY OR TERTIARY)	HOW MITIGATION WILL BE SECURED
<p>Dissemination of information via:</p> <ul style="list-style-type: none"> • Notice to Mariners (NtM); • Kingfisher bulletins; • Fisheries liaison officer; and • Additional appropriate media outlets. 	<p>Consultation with all Other Sea Users likely to be impacted by activities associated with the Project will be consulted with throughout the construction, operation and maintenance and decommissioning phases of the development. Any maintenance work required during the operational phase of the Project will be communicated effectively.</p>	<p>Primary</p>	<p>Secured through conditions attached to the Marine Licence.</p>
<p>Consultation with asset owners</p>	<p>Consultation with owners and operators of other offshore infrastructure will occur to manage any works undertaken during the construction, operation and maintenance and decommissioning phases of the Project.</p>	<p>Primary</p>	<p>Secured through conditions attached to the Marine Licence.</p>
<p>Charting Requirements</p>	<p>Prior to construction, the position and final height of the WTG will be provided to the UK Hydrographic Office (UKHO), Ministry of Defence (MoD), and Defence Geographic Centre (DGC) for aviation and nautical charting purposes. The height will be charted on aeronautical charts and reported to the DGC, which maintains the UK’s database of tall structures (digital vertical obstruction file) at least ten weeks prior to construction.</p> <p>The Project infrastructure, including the cable, mooring lines, anchoring points, as well as the WTG and floating substructure, will be plotted and provided to other sea users to be uploaded on their charts.</p> <p>Following consultation with BT it was confirmed that they do not anticipate any interference with any current or planned radio networks. The grid reference coordinates will be sent to BT upon confirmation.</p>	<p>Primary</p>	<p>Secured through conditions attached to the Marine Licence.</p>

MITIGATION MEASURE	DESCRIPTION	FORM (PRIMARY OR TERTIARY)	HOW MITIGATION WILL BE SECURED
<p>Safety Exclusion Zone(s)</p>	<p>The floating WTG is being treated as a supplementary unit under the HSE Offshore Installations and Pipeline Works (Management and Administration) Regulations 1995 and as such, TEPNSUK are applying for a 500 metre (m) safety exclusion zone centred around the WTG for the duration of installation, operations and maintenance activities.</p> <p>There is an existing 500 m safety zone around the Culzean platform that is always present.</p> <p>Minimum safe passing distances will be established around areas of vessel activity that present a navigational safety risk to marine users. This includes providing information of planned works and a requested safe clearance distance. These advisory safety zones are generally 500 m and move with the vessel during its operation.</p>	<p>Primary</p>	<p>Via HSE and secured through conditions attached to the Marine Licence.</p>

16.7 Assessment of Impacts

16.7.1 Potential effects during construction

16.7.1.1 Obstruction to routine oil and gas operations

As discussed in Section 16.3.3, the CNS is an area of extensive oil and gas development. There are multiple subsea oil and gas fields (each with associated subsea infrastructure and pipelines) that overlap the Project Area as well as the Alisa FSO. Other oil and gas operations will typically take place within established 500 m zones around platforms or subsea infrastructure. Moreover, given the level of development in the CNS, all routine oil and gas operations are subject to regular interaction with Other Sea Users. Therefore routine oil and gas operations are assessed as having some tolerance to accommodate obstruction and will be able to recover or adapt. Thus, routine oil and gas operations in the vicinity of the Project are classed as having **low** sensitivity.

There will be distribution of NtM prior to construction and ongoing consultation between TEPNSUK and other oil and gas operators regarding planned activities to agree on procedures that will reduce any effect on both routine oil and gas activities and the Project. As third-party vessels will be aware of the Project construction activities, it is expected that they will be able to plan and re-route with minimal interference to access. Moreover, the Project Area is small scale (one floating WTG approximately 2 km from the Culzean platform) and the Culzean platform is already surrounded by a 500 m exclusion zone, not accessible to third parties. The floating WTG will also be treated as a supplementary oil and gas unit under HSE regulations, and as such will be surrounded by a 500 m safety exclusion zone. Therefore, the impact of the Project on routine oil and gas operations is classed as having **low** magnitude.

Evaluation of significance

Considering the **low** sensitivity of oil and gas operations and the **low** magnitude of the Project, obstruction to routing oil and gas operations is considered to be **negligible** and **not significant**

Sensitivity	Magnitude of impact	Consequence
Low	Low	Negligible

Impact significance - NOT SIGNIFICANT

16.7.1.2 Obstruction of decommissioning works at the Scoter and Merganser fields.

The Project is located between 7.2 km and 9.2 km from the Scoter and Merganser fields and associated seabed infrastructure. During the construction phase, vessels will be present in the area and safety zones will be set-up. Vessel presence may limit the movement of third-party vessels in the area for other activities, including those associated with decommissioning work. The most likely activity that may be disrupted by the Project is the decommissioning of the subsea facilities at Scoter and Merganser as this is in the direct vicinity of the proposed operations and is currently ongoing. The decommissioning of the Scoter and Merganser assets forms part of the NSTA decommissioning strategy and will help support Scotland’s commitment to Net Zero by 2045. Whilst the Scoter and Merganser development is relatively small in comparison to other decommissioning work in the North Sea (subsea decommissioning only), given the importance of decommissioning work in the North Sea, the work at Scoter and Merganser is classed as having **medium** sensitivity.

There will be distribution of NtM prior to construction and ongoing consultation between TEPNSUK and Shell regarding planned activities to agree on procedures that will reduce any effect on both the decommissioning at Scoter and Merganser and the Project. As third-party vessels will be aware of the Project construction activities, it is expected that they will be able to plan and re-route with minimal interference to access. Furthermore, the temporary obstruction will only occur occasionally/intermittently for short periods of time, as access to the subsea facilities at Scoter and Merganser will not be required on a continuous basis but rather *ad-hoc*. Moreover, the Project Area is small scale (one floating WTG approximately 2 km from the Culzean platform) and the Culzean platform and WTG will be surrounded by a 500 m safety exclusion zone. Taking these factors into account and the embedded mitigation listed in Section 16.6, the impact is defined as having **low** magnitude.

Evaluation of significance

Considering the **medium** sensitivity of decommissioning works at the Scoter and Merganser fields and the **low** magnitude of the Project, obstruction to decommissioning activities at the Scoter and Merganser is considered to be **minor** and **not significant**

Sensitivity	Magnitude of impact	Consequence
Medium	Low	Minor

Impact significance - NOT SIGNIFICANT

16.7.1.3 Obstruction of subsea cable activities

The Other Sea Users Study Area is transacted by two submarine cables, both of which are active. The TAMPNET cable is located adjacent to the Project and transects the proposed export cable route between the floating WTG



and the Culzean platform. The North Sea Link Interconnector is located approximately 5 km southeast of the Project. These cables provide important offshore high-capacity communication networks for the UK. These cables transect large portions of the North Sea and interact with multiple offshore developments. Therefore, they are classed as having **low** sensitivity.

There will be distribution of NtM prior to construction and ongoing consultation between TEPNSUK and other operators regarding planned activities to agree on procedures to reduce effect on the export cable. As third-party vessels will be aware of the Project construction activities, it is expected that they will be able to plan and re-route with minimal interference. Moreover, the Project Area is small scale (one floating WTG approximately 2 km from the Culzean platform) and the Culzean platform and WTG will be surrounded by a 500 m safety exclusion zone. Therefore, the impact of the Project on subsea cable activities is classed as having **low** magnitude.

Evaluation of significance

Considering the **low** sensitivity of oil and gas operations and the **low** magnitude of the Project, obstruction of subsea cable activities is considered to be **negligible** and **not significant**

Sensitivity	Magnitude of impact	Consequence
Low	Low	Negligible

Impact significance - NOT SIGNIFICANT

16.7.2 Potential effects during operation and maintenance

The impacts resulting from construction activities are also expected to be relevant to operation and maintenance activities. Additional impacts that are not relevant to construction, or those that are considered to differ in nature when compared with construction are assessed below.

16.7.2.1 Disruption of telecommunications due to the presence of the WTG.

Following construction and once the floating WTG is operational, there is the potential for it to interfere with maritime telecommunications. There are multiple maritime communication networks in the vicinity of the proposed operations relating to vessel use and platforms that are necessary for offshore operations. Therefore, maritime telecommunication networks are classed as having **medium** sensitivity.

According to Ofcom (2009), the presence of tall structures (such as a floating WTG) may interfere with satellite communications. This is only likely to occur if a vessel or rig is in the direct vicinity of the structure. Given the distance to nearby platforms, and the fact that the Culzean platform and WTG will be surrounded by safety zones/ advised safety zones, it is unlikely that any satellite communication networks will be close enough to the WTG to be impacted. Therefore, the impact of the Project on telecommunication networks is classed as having **low** magnitude.

Evaluation of significance

Considering the **medium** sensitivity of telecommunication networks and the **low** magnitude of the Project, impacts to maritime telecommunication networks are considered to be **minor** and **not significant**

Sensitivity	Magnitude of impact	Consequence
-------------	---------------------	-------------

Medium	Low	Minor
--------	-----	-------

Impact significance - NOT SIGNIFICANT

16.7.3 Potential effects during decommissioning

The targeted scenario for decommissioning is a clear seabed. Given the nature of the decommissioning activities, which will largely be a reversal of the installation process, the impacts during decommissioning are expected to be similar to or less than those assessed for the construction stage. It should be noted that the decommissioning options for the export cable removal will be subject to comparative assessment of options at the end of the installation life. This will involve assessing the potential removal of artificial hard structures associated with the Project.

16.7.4 Summary of potential effects

A summary of the outcomes of the assessment of potential effects from the construction, operation and maintenance and decommissioning of the Project is provided in Table 16-9.

No significant effects on Other Sea Users receptors were identified. Therefore, mitigation measures in addition to the embedded mitigation measures listed in Section 16.6 are not considered necessary.

Table 16-9 Summary of potential effects

POTENTIAL EFFECT	RECEPTOR	SENSITIVITY RECEPTOR	OF MAGNITUDE OF IMPACT	OF CONSEQUENCE (SIGNIFICANCE OF EFFECT)	SECONDARY MITIGATION REQUIREMENTS	RESIDUAL CONSEQUENCE (SIGNIFICANCE OF EFFECT)		
Construction and decommissioning								
Obstruction of routine oil and gas activities operations due to the presence of safety zones and construction vessels.	Routine oil and gas activities	Low	Low	Negligible significant	(not)	None required above existing embedded mitigation measures.	Negligible significant	(not)
Obstruction of the ongoing decommissioning operations at the Scoter and Merganser fields due to the presence of safety zones and construction vessels.	Scoter and Merganser Decom	Medium	Low	Minor (not significant)		None required above existing embedded mitigation measures.	Minor (not significant)	
Obstruction of subsea cable installation activities due to the presence of safety zones and construction vessels.	Subsea cables	Low	Low	Negligible significant	(not)	None required above existing embedded mitigation measures.	Negligible significant	(not)



POTENTIAL EFFECT	RECEPTOR	SENSITIVITY OF RECEPTOR	MAGNITUDE OF IMPACT	CONSEQUENCE (SIGNIFICANCE OF EFFECT)	SECONDARY MITIGATION REQUIREMENTS	RESIDUAL CONSEQUENCE (SIGNIFICANCE OF EFFECT)
Operation and maintenance						
Disruption of telecoms during the operation of the WTG due to the production of low levels of electromagnetic radiation.	Maritime telecommunications networks	Medium	Low	Minor (not significant)	None required above existing embedded mitigation measures.	Minor (not significant)

16.8 Proposed Monitoring

Whilst no specific monitoring strategies will be put in place, information with regards to vessel activity and operational work will be published through as embedded mitigation. This will allow for the levels of anthropogenic activity relating to the Project to be effectively communicated to Other Sea Users throughout the Project lifecycle.

- NtM;
- Kingfisher bulletins;
- Fisheries liaison officer; and
- Additional appropriate media outlets.

16.9 Cumulative Effects Assessment

Any potential impacts from the Project could interact with impacts from other developments, plans and activities, resulting in a cumulative effect on Other Sea Users. The general approach to the cumulative effects assessment is described in Chapter 6: EIA Methodology. This has been informed by a screening exercise, undertaken to identify relevant developments for consideration within the cumulative effects assessments for each EIA topic, based on defined Zones of Influence (Zoi). The Other Sea Users Zoi has been defined by a 10 km buffer around the Project in line with the extent of the Study Area.

As the closest development to the Project will be the Central North Sea Electrification (CNSE) Project, located approximately 11 km from the proposed operations. All other Users within the 10 km Zone have been considered in the existing baseline impact assessment (Section 16.3.3). Any potential impacts from the Project would be localised and temporary, occurring within the Study Area. Therefore, no significant change to the cumulative effects on Other Sea Users are expected to result from the Project.

16.10 Inter-Related Effects

Inter-relationships are defined as the interaction between the impacts assessed within different topic assessment chapters on a receptor. The other chapters and impacts related to the assessment of potential effects on Other Sea Users are provided in Table 16-10. For Other Sea Users, it is not anticipated that any inter-related effects will be produced that are of greater significance than the assessments presented for each individual phase noting that all impacts are at most Low, with Mitigation and As Low as Reasonably Practicable (ALARP).

Table 16-10 Other Sea Users inter-relationships

CHAPTER	IMPACT	DESCRIPTION
Chapter 12: Commercial Fisheries	Further exclusion of sea space through vessel presence. Direct impacts from safety issues through vessel-to-vessel collision, vessel to structure allision, interference with navigation equipment and loss of station.	Impacts on Other Sea Users resulting from fishing vessel presence, further excluding available sea space. Safety issues may arise from vessel-to-vessel collision, vessel to structure allision, interference with navigation equipment and loss of station. are also relevant to fishing vessels.

CHAPTER	IMPACT	DESCRIPTION
Chapter 13: Shipping and Navigation	<p>Further exclusion of sea space through vessel presence.</p> <p>Direct impacts from safety issues through vessel-to-vessel collision, vessel to structure allision, interference with navigation equipment and loss of station.</p>	<p>Impacts on Other Sea Users resulting from vessel presence, further excluding available sea space.</p> <p>Safety issues may arise from vessel-to-vessel collision, vessel to structure allision, interference with navigation equipment and loss of station. are also relevant to fishing vessels.</p>

16.11 Transboundary Effects

The Project is located approximately 20 km from the UK/Norway transboundary line. This is outside the 10 km buffer zone set out for interactions with Other Sea Users. Therefore, there is no potential for transboundary impacts on other users of the marine environment during the construction, operation and maintenance or decommissioning phases of the Project. No other users of the marine environment associated with other European Economic Areas (EEA) have been identified within the waters of the Study Area, therefore no further assessment is required.

16.12 Summary of Impacts and Mitigation Measures

No secondary mitigation, over and above the embedded mitigation measures proposed in Section 16.6 is either required or proposed in relation to the potential effects of the Project on Other Sea Users as no significant impacts are predicted.

REFERENCES

Department for Business, Energy and Industrial Strategy (BEIS) (2022). UK Offshore Energy Strategic Environmental Assessment 4 (OESEA4). Available online at: <https://www.gov.uk/government/consultations/uk-offshore-energy-strategic-environmental-assessment-4-oesea4> [Accessed 16/02/2024].

European Subsea Cable Association (ESCA) (2016). The Proximity of Offshore Renewable Energy Installations & Subsea Cable Infrastructures. Available online at: <https://www.escaeu.org/guidelines/> [Accessed 13/02/2024].

Gill, A.B., Hutchison, Z.L. & Desender, M. (2023). Electromagnetic Fields (EMFs) from subsea power cables in the natural marine environment. Cefas Project Report for Crown Estate Offshore Wind Evidence and Change Programme, 66 pp.

International Cable Protection Committee (ICPC) (2019). ICPC Recommendations. Available online at: <https://www.iscpc.org/publications/recommendations/> [Accessed 16/02/2024].

Kingfisher Information Service – Offshore Renewable & Cable Awareness project (KIS-ORCA) (2023). Subsea Cables. Available online at: <https://kis-orca.org/subsea-cables/> [Accessed 16/02/2024].

Marine Institute (2000). Assessment of Impact of Offshore Wind Energy Structures on the Marine Environment. Available online at: <https://oar.marine.ie/bitstream/handle/10793/579/Assessment%20of%20Impact%20of%20Offshore%20Wind%20Energy%20Structures.pdf?sequence=1> [Accessed 16/02/2024].

Marine Scotland (2023). National Marine Plan Interactive (NMPI). Available online at: <https://marinescotland.atkinsgeospatial.com/nmpi/> [Accessed 16/02/2023].

North Sea Transition Authority (NSTA) (2023). Offshore Oil and Gas Activity Interactive Map. Available online at: <https://nstauthority.maps.arcgis.com/apps/webappviewer/index.html?id=cb3474a78df24139b1651908ff8c8975> [Accessed 13/01/2024].

Office of Communications (Ofcom) (2009). Tall structures and their impact on broadcast and other wireless services. 26th August 2009. Available online at: https://www.ofcom.org.uk/_data/assets/pdf_file/0026/63494/tall_structures.pdf [Accessed 13/02/2024].

Oil and Gas UK (OGUK) (2015). Pipeline Crossing Agreement and Proximity Agreement Pack. Available online at: <https://oeuk.org.uk/product/pipeline-crossing-agreement-proximity-agreement-pack/> [Accessed 16/02/2024].

Scottish Government (2015). Scotland's National Marine Plan. Available online at: <https://www.gov.scot/publications/scotlands-national-marine-plan/> [Accessed 16/02/2024].

Shell (2022). Scoter & Merganser Fields Decommissioning Programmes. Shell Report Number SMDP-PT-S-AA-8203-00001. Final Version, 1 August 2022. Available online at: https://assets.publishing.service.gov.uk/media/632ae8a68fa8f53cb65ec457/Scoter_and_Merganser_DP.pdf [Accessed 16/02/2024].

Culzean Floating Offshore Wind Turbine Pilot Project

Environmental Impact Assessment Report



The Crown Estate (TCE) (2012a). Guidance: Export transmission cables for offshore renewable installations – Principles of cable routing and spacing. Available online at: <https://www.thecrownestate.co.uk/media/1781/ei-km-in-pc-cables-export-transmission-cables-for-offshore-renewable-installations.pdf> [Accessed 13/02/2024].

TCE (2012b). Subsea Cables UK Guideline No 6 The Proximity of Offshore Renewable Energy Installations & Submarine Cable Infrastructure in UK Waters. Available online at: <https://www.thecrownestate.co.uk/media/1783/ei-km-in-pc-cables-082012-proximity-of-offshore-renewable-energy-installations-submarine-cable-infrastructure-in-uk-waters-guideline.pdf> [Accessed 13/02/2024].