Cenos Offshore Windfarm Limited

Cenos EIA

Chapter 17 – Marine Infrastructure and Other Sea Users

ASSIGNMENT	**A100907-S01**
DOCUMENT	**A-100907-S01-A-ESIA-018**
CLIENT	CEN001-FLO-CON-ENV-RPT-0020

XODUS

Aberdeen

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

www.xodusgroup.com

REVISIONS & APPROVALS

REV	DATE	DESCRIPTION	ISSUED	CHECKED	APPROVED	CLIENT
A01	17/12/24	Issued for Use	CG	JG	NB	Cenos
R03	20/11/24	Issued for Review	CG	JG	NB	Cenos
R02	18/09/24	Issued for Review	CG	JG	LD	Cenos
R01	14/08/24	Issued for Review	CG	JG	NB	Cenos

CONTENTS

ACRONYMS 4

GLOSSARY 7

17 MARINE INFRASTRUCTURE AND OTHER SEA USERS 13
17.1 Introduction 13
17.3 Scoping and consultation 15
17.4 Baseline characterisation 22
17.4.1 Study Area 22
17.4.2 Data sources 23
17.4.3 Project site-specific surveys 25
17.4.4 Existing baseline 26
17.4.5 Future baseline 39
17.4.6 Summary and key issues 40
17.4.7 Data gaps and uncertainties 40
17.5 Impact assessment methodology 40
17.5.5 Worst-case scenario 53
17.6 Assessment of potential effects 58
17.6.1 Potential effects during construction 58
17.6.2 Potential effects during operation and maintenance 66
17.6.3 Potential effects during decommissioning 68
17.6.4 Summary of potential effects 69
17.7 Assessment of cumulative effects 73
17.7.1 Introduction 73
17.7.2 Cumulative construction effects 75
17.7.3 Cumulative operation and maintenance effects 77
17.7.4 Cumulative decommissioning effects 77
17.7.5 Summary of cumulative effects 77
17.8 Inter-related effects 80
17.8.1 Inter-related effects between Project phases 80
17.8.2 Inter-related effects within a Project phase 80
17.8.3 Inter-relationships 80
17.9 Whole Project assessment 81
17.10 Transboundary effects 82
17.11 Summary of mitigation and monitoring 82
17.12 References 83

ACRONYMS

ACRONYM	DEFINITION
BEIS	Department for Business, Energy, and Industrial Strategy
BGS	British Geological Survey
CAA	Civil Aviation Authority
CCS	Carbon Capture and Storage
CES	Crown Estate Scotland
CNS	Central North Sea
CNSE	Central North Sea Electrification
CNSFTC	Central North Sea Fibre Telecommunications Company Limited
cUXO	Confirmed Unexploded Ordnance
DC	Direct Current
DSLP	Development Specification and Layout Plan
EEA	European Economic Area
EEZ	Exclusive Economic Zone
EICC	Export/Import Cable Corridor
EGL	Eastern Green Link
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EICB	Export/Import Cable Bundle
EMP	Environmental Management Plan
EOWDC	European Offshore Wind Deployment Centre
EPS	European Protected Species
ERCoP	Emergency Response and Cooperation Plan
ESCA	European Subsea Cables Association
ETAP	Eastern Trough Area Project
FLOWW	Fishing Liaison with Offshore Wind and Wet Renewables Group
FMMS	Fisheries Management and Mitigation Strategy
FPSO	Floating Production Storage and Offloading
FTU	Floating Turbine Unit
FUKA	Frigg UK Pipeline
GW	Gigawatt
HDD	Horizontal Directional Drilling

ACRONYM	DEFINITION
HOD	High Order Detonation
HRA	Habitats Regulations Appraisal
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
IAC	Inter-Array Cable
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
ICPC	International Cable Protection Committee
INNS	Invasive Non Native Species
INNSMP	Invasive Non Native Species Management Plan
INTOG	Innovation and Targeted Oil & Gas
IPS	Intermediate Peripheral Structure
JNCC	Joint Nature Conservation Committee
KIS-ORCA	Kingfisher Information Service Offshore Renewable and Cable Awareness
km	Kilometres
LMP	Lighting and Marking Plan
LOD	Low Order Deflagration
MCA	Maritime and Coastguard Agency
MD-LOT	Marine Directorate - Licensing Operations Team
MD-MAU	Marine Directorate – Marine Analytical Unit
MD-SEDD	Marine Directorate – Science Evidence, Data and Digital
MHWS	Mean High Water Springs
MI & OSU	Marine Infrastructure and Other Sea Users
MLA	Marine Licence Application
MLWS	Mean Low Water Springs
MoD	Ministry of Defence
MPA	Marine Protected Area
MPCP	Marine Pollution Contingency Plan
MW	Megawatt
NCMPA	Nature Conservation Marine Protected Area
NEQ	Net Explosive Quantity
NM	Nautical Mile
NMP	National Marine Plan
NMPi	National Marine Plan Interactive

ACRONYM	DEFINITION
NSL	North Sea Link
NSP	Navigational Safety Plan
NSRG	North Sea Renewables Grid
NSTA	North Sea Transition Authority
NtM	Notice to Mariners
O&G	Oil and Gas
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OPRED ODU	OPRED - Offshore Decommissioning Unit
OREC	Offshore Renewable Energy Catapult
OSCP	Offshore Substation Converter Platform
OWF	Offshore Wind Farm
PDR	Process, Drilling and Riser
PO	Plan Option
PLGR	Pre-Lay Grapnel Run
pUXO	Potential Unexploded Ordnance
PWA	Pipeline Works Authorisations
QU	Quarters and Utilities
RLB	Red Line Boundary
ROV	Remotely Operated Vehicles
SAR	Search and Rescue
SPS	Significant Peripheral Structure
SWPC	Salamander Wind Project Company Limited
TCE	The Crown Estate
UK	United Kingdom
UKHO	United Kingdom Hydrographic Office
UXO	Unexploded Ordnance
WTG	Wind Turbine Generator
ZoI	Zone of Influence

GLOSSARY

TERM	DEFINITION
2023 Scoping Opinion	Scoping Opinion received in June 2023, superseded by the 2024 Scoping Opinion.
2023 Scoping Report	Environmental Impact Assessment (EIA) Scoping Report submitted in 2023, superseded by the 2024 Scoping Report.
2024 Scoping Opinion	Scoping Opinion received in September 2024, superseding the 2023 Scoping Opinion.
2024 Scoping Report	EIA Scoping Report submitted in April 2024, superseding the 2023 Scoping Report.
Area of Opportunity	The area in which the limits of electricity transmission via High Voltage Alternating Current (HVAC) cables can reach oil and gas assets for decarbonisation. This area is based on assets within a 100 kilometre (km) radius of the Array Area.
Array Area	The area within which the Wind Turbine Generators (WTGs), floating substructures, moorings and anchors, Offshore Substation Converter Platforms (OSCPs) and Inter-Array Cables (IAC) will be present.
Cenos Offshore Windfarm ('the Project')	'The Project' is the term used to describe Cenos Offshore Windfarm. The Project is a floating offshore windfarm located in the North Sea, with a generating capacity of up to 1,350 Megawatts (MW). The Project which defines the Red Line Boundary (RLB) for the Section 36 Consent and Marine Licence Applications (MLA), includes all offshore components seaward of Mean High Water Springs (MHWS) (WTGs, OSCPs, cables, floating substructures moorings and anchors and all other associated infrastructure). The Project is the focus of this Environmental Impact Assessment Report (EIAR).
Cenos Offshore Windfarm Ltd. (The Applicant)	The Applicant for the Section 36 Consent and associated Marine Licences.
Cumulative Assessment	The consideration of potential impacts that could occur cumulatively with other relevant projects, plans, and activities that could result in a cumulative effect on receptors.
Developer	Cenos Offshore Windfarm Ltd., a Joint Venture between Flotation Energy and Vårgrønn As (Vårgrønn).

TERM	DEFINITION
Environmental Impact Assessment (EIA)	The statutory process of evaluating the likely significant environmental effects of a proposed project or development. Assessment of the potential impact of the proposed Project on the physical, biological and human environment during construction, operation and maintenance and decommissioning.
Environmental Impact Assessment Regulations	This term is used to refer to the Environmental Impact Assessment Regulations which are of relevance to the Project. This includes the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended); and the Marine Works (Environmental Impact Assessment) Regulations 2007.
Environmental Impact Assessment Report	A report documenting the findings of the EIA for the Project in accordance with relevant EIA Regulations.
Export/Import Cable	High voltage cable used to export/import power between the OSCPs and Landfall.
Export/Import Cable Bundle (EICB)	Comprising two Export/Import Cables and one fibre-optic cable bundled in a single trench.
Export/Import Cable Corridor (EICC)	The area within which the Export/Import Cable Route will be planned and the Export/Import Cable will be laid, from the perimeter of the Array Area to MHWS.
Export/Import Cable Route	The area within the Export/Import Export Corridor (EICC) within which the Export/Import Cable Bundle (EICB) is laid, from the perimeter of the Array Area to MHWS.
Floating Turbine Unit (FTU)	The equipment associated with electricity generation comprising the WTG, the floating substructure which supports the WTG, mooring system and the dynamic section of the IAC.
Flotation Energy	Joint venture partner in Cenos Offshore Windfarm Ltd.
Habitats Regulations	The Habitats Directive (Directive 92/43/ECC) and the Wild Birds Directive (Directive 2009/147/EC) were transposed into Scottish Law by the Conservation (Natural Habitats &c) Regulations 1994 ('Habitats Regulations') (up to 12 NM); by the Conservation of Offshore Marine Habitats and Species Regulations 2017 ('Offshore Marine Regulations') (beyond 12 NM); the Conservation of Habitats and Species Regulations

TERM	DEFINITION
	2017 (of relevance to consents under Section 36 of the Electricity Act 1989); the Offshore Petroleum Activities (Conservation of Habitats) Regulations 2001; and the Wildlife and Countryside Act 1981. The Habitats Regulations set out the stages of the Habitats Regulations Appraisal (HRA) process required to assess the potential impacts of a proposed project on European Sites (Special Areas of Conservation, Special Protection Areas, candidate SACs and SPAs and Ramsar Sites).
Habitats Regulations Appraisal	The assessment of the impacts of implementing a plan or policy on a European Site, the purpose being to consider the impacts of a project against conservation objectives of the site and to ascertain whether it would adversely affect the integrity of the site.
High Voltage Alternating Current (HVAC)	Refers to high voltage electricity in Alternating Current (AC) form which is produced by the WTGs and flows through the IAC system to the OSCPs. HVAC may also be used for onward power transmission from the OSCPs to assets or to shore over shorter distances.
High Voltage Direct Current (HVDC)	Refers to high voltage electricity in Direct Current (DC) form which is converted from HVAC to HVDC at the OSCPs and transmitted to shore over longer distances.
Horizontal Directional Drilling (HDD)	An engineering technique for laying cables that avoids open trenches by drilling between two locations beneath the ground's surface.
Innovation and Targeted Oil & Gas (INTOG)	In November 2022, the Crown Estate Scotland (CES) announced the Innovation and Targeted Oil & Gas (INTOG) Leasing Round, to help enable this sector-wide commitment to decarbonisation. INTOG allowed developers to apply for seabed rights to develop offshore windfarms for the purpose of providing low carbon electricity to power oil and gas installations and help to decarbonise the sector. Cenos is an INTOG project and in November 2023 secured an Exclusivity Agreement as part of the INTOG leasing round.
Inter-Array Cable (IAC)	The cables which connect the WTGs to the OSCPs. WTGs may be connected with IACs into a hub or in series as a 'string' or a 'loop' such that power from the connected WTGs is gathered to the OSCPs via a single cable.
Joint Venture	The commercial partnership between Flotation Energy and Vårgrønn, the shareholders which hold the Exclusivity Agreement with CES to develop the Cenos site as an INTOG project.

TERM	DEFINITION
Landfall	The area where the Export/Import Cable from the Array Area will be brought ashore. The interface between the offshore and onshore environments.
Marine Licence	Licence required for certain activities in the marine environment and granted under the Marine and Coastal Access Act 2009 and/or the Marine (Scotland) Act 2010.
Marine Protected Area (MPA)	Marine sites protected at the national level under the Marine (Scotland) Act 2010 out to 12 NM, and the Marine and Coastal Access Act 2009 between 12-200 NM. In Scotland MPAs are areas of sea and seabed defined so as to protect habitats, wildlife, geology, underseas landforms, historic shipwrecks and to demonstrate sustainable management of the sea.
Marine Protected Area (MPA) Assessment	A three-step process for determining whether there is a significant risk that a proposed development could hinder the achievement of the conservation objectives of an MPA.
Mean High Water Springs (MHWS)	The height of Mean High Water Springs is the average throughout the year, of two successive high waters, during a 24-hour period in each month when the range of the tide is at its greatest.
Mean Low Water Springs (MLWS)	The height of Mean Low Water Springs is the average throughout a year of the heights of two successive low waters during periods of 24 hours (approximately once a fortnight).
Mitigation Measures	Measures considered within the topic-specific chapters in order to avoid impacts or reduce them to acceptable levels. • Primary mitigation - measures that are an inherent part of 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 Project; and • Tertiary mitigation – measures that are implemented in accordance with industry 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.

TERM	DEFINITION
Mooring System	Comprising the mooring lines and anchors, the mooring system connects the floating substructure to the seabed, provides station-keeping capability for the floating substructure and contributes to the stability of the floating substructure and WTG.
Nature Conservation Marine Protected Area (NCMPA)	MPA designated by Scottish Ministers in the interests of nature conservation under the Marine (Scotland) Act 2010.
Offshore Substation Converter Platforms (OSCPs)	An offshore platform on a fixed jacket substructure, containing electrical equipment to aggregate the power from the WTGs and convert power between HVAC and HVDC for export/import via the Export/Import cable to/from the shore. The OSCPs will also act as power distribution stations for the Oil & Gas platforms.
Onward Development	Transmission projects which are anticipated to be brought forward for development by 3rd party oil and gas operators to enable electrification of assets via electricity generated by the Project. All Onward Development will subject to separate marine licensing and permitting requirements.
Onward Development Area	The area within which oil and gas assets would have the potential to be electrified by the Project.
Onward Development Connections	Oil and gas assets located in the waters surrounding the Array Area will be electrified via transmission infrastructure which will connect to the Project's OSCPs. These transmission cables are referred to as Onward Development Connections.
Project Area	The area that encompasses both the Array Area and EICC.
Project Design Envelope	A description of the range of possible elements that make up the Project design options under consideration and that are assessed as part of the EIA for the Project.
Study Area	Receptor specific area where potential impacts from the Project could occur.
Transboundary Assessment	The consideration of impacts from the Project which have the potential to have a significant effect on another European Economic Area (EEA) state's environment. Where there is a potential for a transboundary effect, as a result of the Project, these are assessed within the relevant EIA chapter.

TERM	DEFINITION
Transmission Infrastructure	The infrastructure responsible for moving electricity from generating stations to substations, load areas, assets and the electrical grid, comprising the OSCPs, and associated substructure, and the Export/Import Cable.
Vårgrønn As (Vårgrønn)	Joint venture partner in Cenos Offshore Windfarm Ltd.
Wind Turbine Generator (WTG)	The equipment associated with electricity generation from available wind resource, comprising the surface components located above the supporting substructure (e.g., tower, nacelle, hub, blades, and any necessary power transformation equipment, generators, and switchgears).
Worst-Case Scenario	The worst-case scenario based on the Project Design Envelope which varies by receptor and/or impact pathway identified.

17 MARINE INFRASTRUCTURE AND OTHER SEA USERS

17.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) presents the Marine Infrastructure and Other Sea Users (MI & OSU) receptors of relevance to the Project and assesses the potential impacts from the construction, operation and maintenance and decommissioning phases of the Project on these receptors. Where required, mitigation is proposed, and the residual impacts and their significance are assessed. Potential cumulative and transboundary impacts are also considered.

Table 17-1 below provides a list of all the supporting studies which relate to and should be read in conjunction with the MI & OSU impact assessment. All supporting studies are appended to this EIAR.

Table 17-1 Supporting studies

DETAILS OF STUDY	SUPPORTING STUDIES AND LOCATION (WHERE RELEVANT)
Unexploded Ordnance Threat and Risk Assessment	EIAR Vol. 4, Appendix 5: UXO Threat and Risk Assessment.
Unexploded Ordnance Risk Mitigation Strategy	EIAR Vol. 4. Appendix 6: UXO Risk Mitigation Strategy.

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

- EIAR Vol. 3, Chapter 15: Shipping and Navigation – assesses the impacts on shipping and navigation receptors, including the safety of third-party vessels potentially associated with other marine infrastructure.

Where information from other chapters is used to inform the impact assessment, reference to the relevant EIAR chapter is given.

The MI & OSU receptors assessed in this chapter are introduced in Section 17.4.4. Impacts relating to other MI & OSU receptors, not considered within this chapter, are discussed in EIAR Vol. 3, Chapter 14: Commercial Fisheries, EIAR Vol. 3, Chapter 15: Shipping and Navigation, EIAR Vol. 3, Chapter 18: Military and Civil Aviation and EIAR Vol. 3, Chapter 19: Socioeconomics, Tourism and Recreation.

The following specialists have contributed to the assessment:

- Cian Galvin, Xodus Group; and
- Jane Gordon, Xodus Group.

17.2 Legislation, policy, and guidance

The wider marine planning, legislation, policy and guidance is discussed in EIAR Vol. 2, Chapter 3: Policy and Legislative Context. The following policy, and guidance are relevant to the assessment of impacts from the Project on MI & OSU receptors:

- Policy:
  - The following policies of the Scotland's National Marine Plan (NMP)[1] (Scottish Government, 2015) apply to this MI & OSU assessment:
    - GEN 1 General Planning Principle: "*There is a presumption in favour of sustainable development and use of the marine environment when consistent with the policies and objectives of this Plan*". This principle is relevant to all marine activities; and
    - GEN 4 Co-existence: "*Proposals which enable coexistence with other development sectors and activities within the Scottish marine area are encouraged in planning and decision making processes, when consistent with policies and objectives of this Plan*".
  - Scotland's NMP also provides sector-specific policies, relevant for the MI & OSU receptor groups. The relevant sectors included in Scotland's NMP considered within this chapter are:
    - Aquaculture;
    - Oil and Gas (O&G);
    - Carbon Capture and Storage (CCS);
    - Offshore wind and marine renewable energy;
    - Submarine cables; and
    - Aggregates.
- Guidance:
  - Assessment of Impact of Offshore Wind Energy Structures on the Marine Environment (Byrne Ó Cléirigh Ltd *et al.*, 2000);
  - Sectoral Marine Plan - Offshore Wind for Innovation and Targeted Oil & Gas (INTOG) Decarbonisation (Scottish Government, 2022);
  - 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);
  - International Cable Protection Committee (ICPC) recommendations (ICPC, 2023);
  - Oil and Gas UK, Pipeline Crossing Agreement and Proximity Agreement Pack (Oil and Gas UK, 2015);
  - The Crown Estate (TCE) Guidance: Export transmission cables for offshore renewable installations – Principles of cable routeing and spacing (TCE, 2012); and
  - Renewable UK Offshore Wind and Marine Energy Health and Safety Guidelines (Renewable UK, 2014).

[1] *Following the most recent review of the NMP in 2021, the Scottish Ministers announced, in 2022, their intention to update the National Marine Plan. This update is underway but has not yet reached a draft consultation stage. A stakeholder engagement strategy and statement of public participation was published in August 2024.*

17.3 Scoping and consultation

Stakeholder consultation has been ongoing throughout the Environmental Impact Assessment (EIA) process 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 2024 Scoping Report was submitted to Marine Directorate – Licensing Operations Team (MD-LOT) in April 2024; relevant stakeholders were consulted. The Scoping Opinion was received in September 2024. The 2024 Scoping Report and Scoping Opinion supersedes the 2023 Scoping Report and the Scoping Opinion for the Project. Relevant comments from the 2024 Scoping Opinion and other consultation specific to MI & OSU are provided in Table 17-2 below, which provides a high-level response on how these comments have been addressed within the EIAR.

Further consultation has been undertaken throughout the pre-application phase. The list below summarises the consultation activities carried out relevant to MI & OSU:

A CENOS pre-scoping workshop took place in February 2024 including the Applicant, MD-LOT, Marine Directorate – Science Evidence, Data and Digital (MD-SEDD), Joint Nature Conservation Committee (JNCC), NatureScot as well as NorthConnect, and the Marine Directorate - Marine Analytical Unit (MD-MAU). The Applicant sought feedback from stakeholders on the 2024 Scoping Report ahead of submission during this workshop, however, no responses were provided in relation to MI & OSU.

Table 17-2 Comments from the Scoping Opinion relevant to MI & OSU

REGULATOR/CONSULTEE	COMMENT	RESPONSE
Scottish Ministers	The Developer outlines the approach to be taken to marine infrastructure and other user receptors in chapter 17 of the Scoping Report. The Developer describes the study area for this receptor topic as the area within which the offshore infrastructure will be installed and operated which may directly interact with third party infrastructure and other marine users, together with the central North Sea area as the widest perspective of the study area. The Scottish Ministers are satisfied with the study area as described.	The Central North Sea (CNS) Study Area has been maintained as the largest Study Area for consideration within this chapter, see Section 17.4.1.
Scottish Ministers	The Developer considers the subset of receptors which may be included for assessment and notes that those covered in other sections of the Scoping Report will not be considered in this section. The receptors which shall be included and excluded for consideration in this chapter are listed in Table 17.1. The Scottish Minsters are in agreement with this list.	Noted, the receptors considered within this chapter are consistent with those outlined within the Scoping Report (see Table 17-8 and Table 17-9).
Scottish Ministers	The Scottish Ministers are largely in agreement with the impacts proposed to be scoped in for assessment in the EIA Report as detailed in Table 17-7 of the Scoping Report. In consultation SHET noted that there may be some overlap between the ECC of the Proposed Development and various other transmission cables, notably to the proposed Eastern Green Link 2 and Eastern Green Link 3 cables. This supports the inclusion of effects on subsea telecommunications and power infrastructure.	Baseline information on Eastern Green Link 2 (EGL2) and 3 (EGL3) is discussed in Section 17.4.4.3 of this chapter. Potential impacts on subsea telecommunication and power cables are specifically assessed in Section 17.6.1.2 of this chapter, and this includes consideration of potential impacts on EGL2 and EGL3.

REGULATOR/CONSULTEE	COMMENT	RESPONSE
Scottish Ministers	Due to potential direct overlap between the Salamander Offshore Wind Farm site and the site of the Proposed Development, there may be potential effects on and cumulative effects with the Salamander Offshore Wind Farm and as such should be scoped into the EIA Report.	Noted. Potential impacts on Salamander Offshore Wind Farm are discussed in Section 17.6.1.2 and 17.6.2.2 of this chapter, and the cumulative effects assessment is provided in Section 17.7 of this chapter.
Scottish Ministers	The MOD also commented on potential impacts to marine infrastructure and other users noting that the potential presence of UXO and of disposal sites is a relevant consideration to the installation of cables and other intrusive works. Whilst the discovery of UXOs is already proposed to be scoped into the EIA by the Developer, as the MOD has highly surveyed routes which may be relevant to the installation of cables and infrastructure, the Scottish Ministers recommend that the Developer liaise with the MOD in this regard.	Unexploded Ordnance (UXO) has been assessed in Section 17.6.1.5 of this chapter. Information on the potential presence of UXO in the Project Area is outlined in EIAR Vol. 4, Appendix 5: UXO Threat and Risk Assessment.
Scottish Ministers	In relation to cumulative effects, the Scottish Ministers agree that cumulative effects are scoped in and advise that cumulative effects with other renewable energy developments should also be scoped in for assessment.	Cumulative effects are considered and assessed in Section 17.7 of this chapter.
Scottish Ministers	The Scottish Ministers agree that transboundary effects should be scoped in for assessment in the EIA Report.	Transboundary effects are detailed in Section 17.10 of this chapter.
SSEN Transmission	Thank you for the opportunity to respond to the Scoping Report, SCOP-0444 associated with the Cenos Offshore Wind Farm. Whilst we note that potential cumulative effects with other developers and sea users are to be assessed in the Environmental Impact Assessment, we would like to draw your attention to	Potential effects on the EGL2 and EGL3 projects are considered in Section 17.6.1.2. These projects will also be considered within the cumulative effects assessments within this EIAR, where relevant.

REGULATOR/CONSULTEE	COMMENT	RESPONSE
	the Eastern Green Link (EGL) 2 project which has a granted Marine Licence (MS-00009943, 4th May 2023) which intersects the proposed export corridor. In addition, and as part of our responsibilities to deliver and maintain critical national transmission infrastructure within and connecting the North of Scotland, which is required to support NetZero targets, Scottish Hydro Electric Transmission Plc (SHE Transmission) has submitted a scoping request for an additional subsea cable transmission link, EGL 3.	
SSEN Transmission	In addition, SHE Transmission is also developing the Spittal to Peterhead HVDC link. At this stage it unlikely that the proposed routes will cross. However, there is potential for cumulative effects to occur so we would encourage due consideration of this development.	The Applicant thanks SSEN Transmission for the information regarding the Spittal to Peterhead link and notes that the cable will likely landfall to the north of the Export/Import Cable Corridor (EICC). The Spittal to Peterhead link is at an early project phase, and therefore, there is limited information available for an assessment of the Project effects on this cable to be conducted. Taking the early phase of the Spittal to Peterhead link into account, it is expected that the construction phase of this asset and the Project will not overlap. It is unlikely there will be any crossing between the Spittal to Peterhead Link and the Project (although this cannot be ruled out). Overall, no significant effects would be expected on this MI & OSU receptor with the implementation of standard industry best practice and early consultation. Therefore, the Spittal to Peterhead HVDC Link is not considered further in this assessment.
SSEN Transmission	We note that final decisions on export cable routes and landfall locations for the Cenos Offshore Windfarm project have not yet been made. SHE Transmission request that present and future cables, both power and telecoms,	EIAR Vol. 2, Chapter 4: Site Selection and Consideration of Alternatives provides an overview of the constraints considered for cable routeing and site selection. Other third-

REGULATOR/CONSULTEE	COMMENT	RESPONSE
	are given due consideration and that the provision is maintained for cables to cross both export cables and the generation site, and that the freedom of the seas is maintained. SHE Transmission remains committed to working with other legitimate users of the sea in a proactive manner, enabling all parties to deliver successful projects wherever reasonably possible.	party infrastructure has and will continue to be taken into account for site and route selection, as required.
SSEN Transmission	It is also noted that the proposed landfall area of the East coast is increasingly busy with survey activity, and we would therefore encourage communication and coordination between the projects where possible, to minimise the impacts to local fisheries. We suggest that ongoing discussion and consultation between both parties is maintained, and where necessary that proximity and crossing agreements are developed as necessary. I would be happy to discuss any questions or concerns in relation to the above.	The potential impacts of the Project on fisheries are considered in EIAR Vol. 3, Chapter 14: Commercial Fisheries. The Applicant will continue to engage with fisheries stakeholders during all phases of the Project, in line with Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW) best practice guidance (FLOWW, 2014; 2015).
Salamander Wind Project	Salamander Offshore Wind Farm wishes to respond to the Cenos Offshore Windfarm Scoping Report. Salamander Offshore Wind Farm is being developed by Salamander Wind Project Company Limited (SWPC), a joint venture partnership between Ørsted, Simply Blue Group and Subsea7.Ørsted develops, constructs, and operates offshore and onshore wind farms, solar farms, energy storage facilities, and bioenergy plants, and provides energy products to its customers. Globally, Ørsted is the market leader in offshore wind and owns and operates the world's biggest offshore wind farms off the East Coast of the UK and thus we value the opportunity to participate in this consultation process. Simply Blue Group is a leading blue economy developer focused on enabling a range of marine renewable energies. It develops pioneering blue economy projects – floating offshore wind, e-Fuels, wave energy, and low-impact aquaculture – all in harmony with the oceans.	Noted.

REGULATOR/CONSULTEE	COMMENT	RESPONSE
	Subsea7 is a global leader in the delivery of offshore projects and services for the evolving energy industry. Subsea7 creates sustainable value by being the industry's partner and employer of choice in delivering the efficient offshore solutions the world needs.	
Salamander Wind Project	We would like to take this opportunity to clarify the stage of the Salamander Offshore Wind Farm: • Salamander Offshore Wind Farm (capacity of up to 100 MW) is being developed under the innovation track of the INTOG leasing round and submitted its offshore consents applications, including Offshore Environmental Impact Assessment (EIA) Report in April 2024; • The Offshore Array Area for Salamander Offshore Wind Farm is approximately 35 km off the coast of Peterhead; • The Offshore Export Cable is proposed to make landfall north of Peterhead, near Lunderton and Kirkton; and • The Onshore Export Cable Corridor and other onshore infrastructure will be located north of Peterhead, close to the Export Cable landfall.	Noted. Details on the Salamander Offshore Wind Farm are included in Section 17.4.
Salamander Wind Project	We note the Cenos Offshore Windfarm project description, including the design envelope, is still in development but will be fully detailed in the EIA Report, and will include indicative maximum project parameters, taking into account consultee feedback provided within the Scoping Opinion.	EIAR Vol. 2, Chapter 5: Project Description provides a fully detailed description of the Project Design Envelope considered within this EIAR.
Salamander Wind Project	The Cenos Offshore Windfarm has a Scoping Boundary which directly overlaps with the offshore application boundary of the Salamander Offshore Wind Farm. We understand that the Cenos export cable route under consideration would require crossing(s) of our export cables (either Cenos crossing	Potential impacts on other offshore renewable energy projects, including the Salamander Offshore Wind Farm, are discussed in Sections 17.6.1.2 and 17.6.2.2 of this chapter, and

REGULATOR/CONSULTEE	COMMENT	RESPONSE
	Salamander or vice versa depending on construction timelines). Therefore, there is the potential for our respective projects to interact and for both developments to have cumulative environmental effects on other receptors. We would therefore expect any EIA in respect of your proposals to fully consider the potential effects on, and potential cumulative effects with, our Salamander Offshore Wind Farm.	the cumulative effects assessment is provided in Section 17.7 of this chapter.
Salamander Wind Project	Salamander Offshore Wind Farm is working with Cenos through the Peterhead Developers Forum and wishes to engage in any discussions and be kept informed of your proposals so that the two projects may consider each other cumulatively through the development process. We would also welcome bilateral meetings at an appropriate time to discuss topics of common interest.	The Applicant welcomes this collaborative approach and will proactively engage with developers of nearby infrastructure during all phases of the Project.

17.4 Baseline characterisation

This section outlines the current baseline for MI & OSU receptors within the MI & OSU Study Areas (the Study Areas). A desk-based approach was used to establish the baseline through publicly available data sources and literature.

17.4.1 Study Area

The "MI & OSU Study Area" is defined as the Project Area, encompassing the Zone of Influence (ZoI) that will be directly impacted by the offshore infrastructure. This represents the area in which potentially significant effects from physical disruption to MI & OSU receptors are most likely. The Project Area encompasses the Array Area and the EICC. For simplicity, the MI & OSU Study Area is predominantly referred to as the Project Area in this chapter.

Two wider Study Areas have also been considered to account for the movement of mobile MI & OSU receptors (i.e. vessel movements associated with other marine infrastructure) (Figure 17-1). The largest Study Area is defined as the Central North Sea (CNS) to ensure that all MI & OSU receptors potentially impacted by the Project are considered (i.e. "the CNS Study Area"). The CNS Study Area is predominantly used for other large-scale projects, such as offshore renewable energy developments. For other MI & OSU receptors, the baseline characterisation and analysis has primarily been undertaken for "the local Study Area", defined as a 10 Nautical Mile (NM) buffer area around the Project Area, which is standard for the assessment of shipping and navigation impacts and is in line with EIAR Vol. 3, Chapter 15: Shipping and Navigation. This 10 NM buffer is considered sufficient to capture all relevant movements of vessels associated with most MI & OSU receptors

In summary, the relevant Study Areas considered within this chapter can be broadly defined as:

- CNS Study Area:
  - The regional Study Area encompassing all receptors potentially impacted by the Project, predominantly used or other large-scale projects such as offshore renewable energy developments.
- The local Study Area:
  - The Project Area plus a 10 NM buffer to account for mobile movements of most MI & OSU receptors.
- MI & OSU Study Area:
  - The Project Area.

The MI & OSU temporal scope is defined as the entire lifetime of the Project including construction, operation and maintenance, and decommissioning. The anticipated schedule of construction is 2030-2035 (see EIAR Vol. 2, Chapter 5: Project Description).

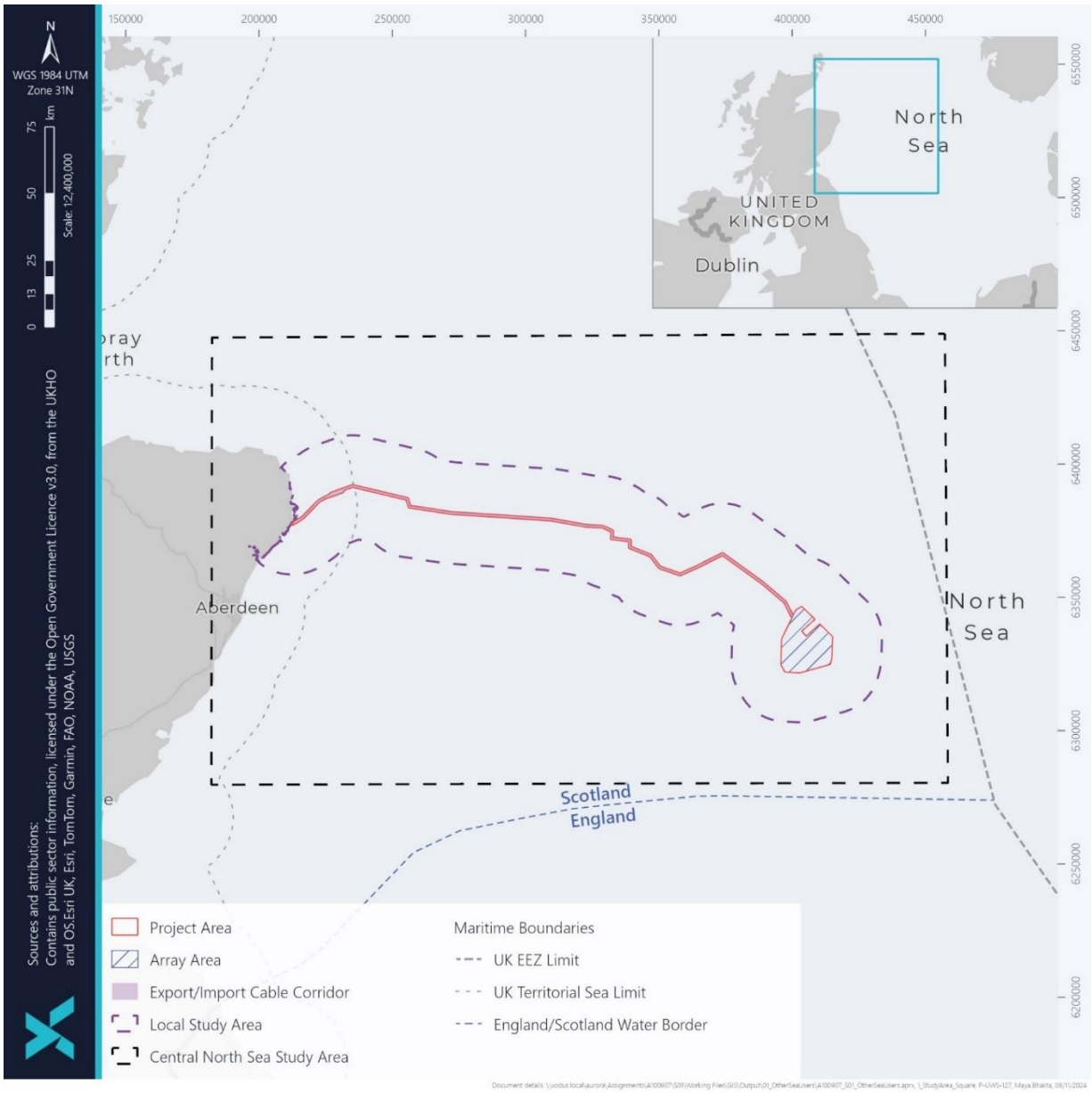

Figure 17-1 The MI & OSU Study Areas

17.4.2 Data sources

The existing data sets and literature with relevant coverage to the Project which have been used to inform the baseline characterisation for the MI & OSU receptors are outlined in Table 17-3. Project specific data obtained and used to inform this topic assessment are presented in Section 17.4.3.

Table 17-3 Summary of key datasets and reports

TITLE	SOURCE	YEAR	AUTHOR
Scotland's National Marine Plan.	https://www.gov.scot/publications/scotlands-national-marine-plan/	2015	The Scottish Government
Sectoral Marine Plan: regional locational guidance.	https://www.gov.scot/publications/sectoral-marine-plan-regional-locational-guidance/	2020	The Scottish Government
The Marine Scotland National Marine Plan Interactive (NMPI) Maps.	https://marinescotland.atkinsgeospatial.com/nmpi/	2024	Marine Directorate
UK Offshore Energy SEA 4 – Appendix 1h – Other Users and Material Assets.	https://www.gov.uk/government/consultations/uk-offshore-energy-strategic-environmental-assessment-4-oesea4	2022	Department for Business, Energy, and Industrial Strategy (BEIS)
North Sea Transition Authority (NSTA) spatial data, including: • **Wells;** • **Surface oil and gas** • **infrastructure;** • **Subsurface oil and gas** • **infrastructure; and** • **Pipelines.**	https://www.nstauthority.co.uk/data-centre/interactive-maps-and-tools/	2023	NSTA
EMODNet: • **Cables and pipelines; and** • **Explosive disposal sites.**	https://emodnet.ec.europa.eu/geoviewer/#!/	2024	EMODNet
Crown Estate Scotland (CES) Maps, including for: • **Aquaculture; and**	https://www.crownestatescotland.com/resources/map	2024	CES

TITLE	SOURCE	YEAR	AUTHOR
• Energy and infrastructure (e.g. offshore wind, tidal, wave, CCS, cables and pipelines).			
TeleGeography for: • Telecommunication Cables	https://www.submarinecablemap.com/	2024	TeleGeography
The Kingfisher Information Service – Offshore Renewable and Cable Awareness (KIS-ORCA)	https://kis-orca.org/map/	2022	ESCA and the Kingfisher Information Service of Seafish
Offshore Renewable Energy Catapult (OREC) – Floating Offshore Wind Co-Location and Co-Existence Risks and Opportunities	https://fowcoe.co.uk/industry-insights/reports/floating-offshore-wind-co-location-amp-co-existence-risk-amp-opportunities/?utm_content=308074010&utm_medium=social&utm_source=linkedin&hss_channel=lcp-3318975	2024	OREC

17.4.3 Project site-specific surveys

There have been no Project site-specific surveys conducted for the MI & OSU receptor topic.

17.4.4 Existing baseline

A review of literature and available data sources (as summarised in Table 17-3 above) augmented by consultation has been undertaken to describe the current baseline environment for MI & OSU.

The key MI & OSU receptors present in or around the CNS Study Area are:

- Existing O&G infrastructure;
- Offshore renewable energy developments;
- Subsea infrastructure including cables and pipelines;
- Licenced spoil disposal sites; and
- Productive sources of marine aggregates.

Aquaculture, CCS and military and defence activities are also within the remit of the MI & OSU chapter. Both aquaculture and CCS were scoped out for further assessment within the Scoping Report, due to the intervening distance between the Project and these receptors (40 km for aquaculture and 50 km for CCS) (see Section 17.5.2). Military and civil aviation and defence activities have been covered in a separate chapter within the EIAR. For details on this receptor topic see EIAR Vol. 3, Chapter 18: Military and Civil Aviation.

The following sections provide information on the key MI & OSU receptors across the Study Areas described in Section 17.4.1.

17.4.4.1 Oil and gas infrastructure

Within the CNS there is a well-established O&G industry (BEIS, 2016). In association with the prevalence of O&G infrastructure in the region, there are O&G licenced blocks, surface (e.g. platforms) and subsurface (e.g. wells and pipeline) facilities within the local Study Area (displayed in Figure 17-2).

The Project Area falls within a number of active licenced blocks for O&G activities:

- Array Area – licenced blocks 22/23b, 22/28d, and 22/28a; and
- EICC – licenced blocks 22/21a, 22/21d, 21/20c, 21/19c, 21/19d, and 21/17a.

Licenced Block 22/21a was recently awarded during the 33rd O&G licensing round.

Within the local Study Area there are multiple O&G wells, predominantly decommissioned but some are active or suspended. There are six decommissioned well locations within the Array Area, with five in the north and one in the south (see Figure 17-2 for well locations) (NSTA, 2023). The decommissioned wells within the Array Area are historic exploration wells which are now stage 3 plugged and abandoned (the process of sealing a wellbore and securing it permanently or temporarily when it is no longer in use), and access is therefore not foreseeably considered to be required.

The surface O&G infrastructure in the local Study Area is detailed in Table 17-4. There is no surface infrastructure directly interacting with the Project Area, with the closest being the Kittiwake platform, located 7 km north of the EICC. The East Trough Area Project (ETAP) QU (quarters and utilities) and ETAP PDR (Process, drilling and riser)

platforms are the closest infrastructure to the Array Area, located 14.1 km away. ETAP is an integrated development with seven fields of varying ownership all using the ETAP QU and PDR platform facilities (Offshore Technology, 2024).

Table 17-4 Surface infrastructure within the local Study Area

NAME	INFRASTRUCTURE TYPE	OPERATOR/OWNER	LICENSING BLOCK	STATUS	DISTANCE (KM)
Kittiwake	Platform	Enquest PLC	21/18a	Active	7.0
Arbroath	Platform	Repsol Resources UK	22/17s	Active	12.1
Anasuria	Floating Production Storage and Offloading (FPSO)	Anasuria Operating Company Limited	21/25a	Active	13.1
ETAP QU and ETAP PDR	Platform x 2	BP Exploration	22/24a	Active	14.1
Elgin PUQ and WHP	Platforms x3	Total Energies	22/30c	Active	16.0

The Array Area overlaps with the BP owned Madoes O&G field, one of the ETAP fields. The Madoes field lies within the boundaries of the licenced blocks 22/23b, 22/28d, and 22/28a and consists of a three-well subsea cluster which ties back to the ETAP QU and PDR platforms via the Madoes manifold and a 10" production pipeline (see below). The Array Area is situated ~ 1 km from the subsurface infrastructure located within this field (Marine Directorate, 2024; NSTA, 2023). The closest infrastructure associated with the Madoes field is a wellhead (W156) located approximately 1.2 km from the Array Area.

The Array Area directly overlaps with the Culzean 22" Gas Export Flowline, while other pipelines such as the Cats 36" Gas Export Pipeline are situated directly adjacent to the north-east of the Array Area (NSTA, 2023) (see Figure 17-2 and Table 17-5). As explained above, the Madoes Field ties back into the ETAP surface infrastructure and production facilities through the ETAP Madoes 10" production pipeline and ETAP Madoes 4" Gas Lift which are approximately 1.2 km from the Array Area (NSTA, 2023).

The St Fergus and Cruden Bay gas terminals are located at the north and south of the Project Area, respectively, and are associated with a number of pipelines, such as the Frigg UK Pipeline (FUKA), which connects several facilities for gas export to St Fergus and the Forties pipeline system which landfalls at Cruden Bay, which is historically a major pipeline supplying the majority of the UK's oil. The Inter-Array Cable (IAC) layout within the Array Area is yet to be finalised however, it is anticipated that several crossings with the Culzean 22" Gas Export Flowline could occur. Up to six IACs crossings are assumed to encompass crossings with the Culzean Gas Export Flowline and the Central North Sea Electrification (CNSE) project cables.

The EICC will also cross several pipelines, subject to survey verification. This includes gas pipelines, oil pipelines and inactive pipelines, which are listed in Table 17-5. The EICC will cross the 20" Gas fulmar A - St. Fergus pipeline at three locations and the Forties C to Cruden Bay, Langeled Pipeline and the Cats 36" Gas Export Pipeline at one location. The EICC will also cross the disused Durward Manifold to Dauntless Oil, Water and Gas Lines.

Table 17-5 List of pipelines in the vicinity of the Project

PIPELINE	OPERATOR/OWNER	STATUS	DISTANCE TO PROJECT (KM)	PROJECT'S INTERACTION WITH EXISTING PIPELINE
Culzean 22" Gas Export Flowline	TotalEnergies Upstream UK Limited	Active	0	Overlaps with the Array Area (Six crossing locations. The exact number of IACs crossing the Culzean flowline will be determined once the IACs layout is finalised). (see Section 17.4.4.3)
20" Gas Fulmar A to St Fergus	Shell	Active	0	Overlaps with the EICC (three crossing locations)
Forties C to Cruden Bay – PL721	Ineos	Active	0	Overlaps with the EICC (one crossing location)
Forties C to Cruden Bay – PL8	Ineos	Active	0	Overlaps with the EICC (one crossing location)
Cats 36" Gas Export Pipeline	Wood Group	Active	0	Overlaps with the EICC (one crossing location)
Langeled Pipeline	GASSCO	Active	0	Overlaps with the EICC (one crossing location)
Durward Manifold to Dauntless Oil, Water and Gas Lines	Hess Limited and Spirit Energy	Not in use	0	Overlaps with the EICC (one crossing location per pipeline)
Greater Stella 10" Gas Export Pipeline	Ithaca	Active	0.3	Adjacent to Array Area (to the west) (no crossings)
ETAP Madoes 10" Production, Madoes 129mm production umbilical, and Madoes 4" Gas Lift	BP Exploration	Active	1.2	Adjacent to Array Area (to the south) (no crossings)

The Floating Turbine Units (FTUs) and Offshore Substation Converter Platforms (OSCPs) within the Array Area will be preferentially sited to avoid directly overlapping with O&G infrastructure. However, the option of Project infrastructure being located close to plugged O&G wells (at a suitable offset distance) will be left open, in agreement with relevant operators. The final offsets applied will be determined in consultation with the relevant operator. Only the IACs require crossings with the 22" Culzean Gas Export Flowline which overlaps directly with the Array Area. This will be agreed with TotalEnergies Upstream UK Limited. The EICC will cross several potential pipelines (some at multiple locations). Crossings with pipelines will be in accordance with crossing and proximity agreements established with the O&G operator.

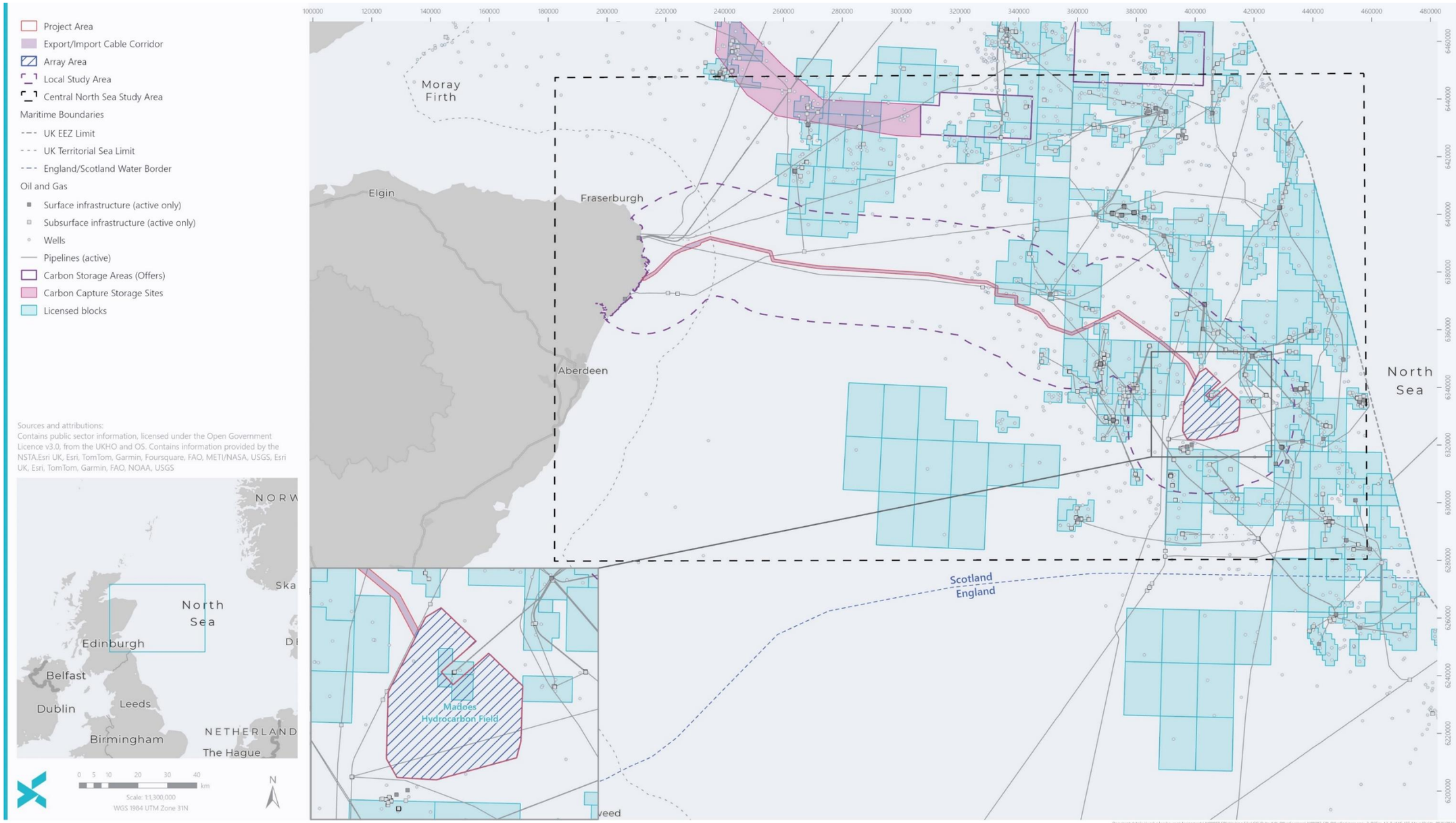

Figure 17-2 O&G and CCS infrastructure[2]

[2] *"Carbon Storage Areas (offers)" display the NSTA carbon dioxide appraisal and storage licence areas which provide exclusive rights for the exploration and appraisal for carbon dioxide in the subsurface. "Carbon Capture Storage Sites" display the CES Agreement/Option for Lease which are also required by a developer for the opportunity to develop carbon capture and storage opportunities. Further details are available here: https://www.nstauthority.co.uk/news-publications/north-sea-transition-authority-the-crown-estate-and-crown-estate-scotland-announce-renewed-collaboration-to-unlock-the-potential-of-carbon-storage/*

17.4.4.2 Offshore renewable energy developments

UK waters, in particular the North Sea, are a current focus for significant Offshore Wind Farm (OWF) development activity. Scotland is a global leader in offshore renewable energy developments, with leasing rounds conducted by CES, identifying regions suitable for wind, wave, and tidal energy developments. Leasing rounds for offshore renewable energy developments from 2009, 2012 and most recently in January 2022 (ScotWind) and March 2023 (INTOG) has seen the east coast of Scotland support a number of potential OWF sites. There are a large number of OWF projects which are operational, under construction or under development which are situated within the CNS Study Area (Marine Directorate, 2024; 4C Offshore, 2024). The OWF developments within the CNS Study Area and their relative distance to the Project are listed in Table 17-6 and displayed in Figure 17-3 .

The operational projects that lie in the vicinity of the Project Area are for the most part, significantly closer to shore, including Kincardine, Aberdeen Bay (European Offshore Wind Deployment Centre ('EOWDC') and the Hywind Scotland Pilot Park ('Hywind') OWFs located off the Aberdeenshire coast, and are therefore adjacent to the EICC rather than the Array Area. Hywind OWF is located approximately 25 km off the coast of Peterhead, north-east Scotland, Aberdeen Bay OWF is located approximately 2.4 km east from the shore in Aberdeen while Kincardine OWF is located approximately 15 km south-east of Aberdeen (Statoil, 2015; Vattenfall, 2011; Atkins, 2014). The Hywind OWF is the closest operational OWF to the Project Area at 8 km south of the EICC.

In 2022, CES announced the results of the ScotWind leasing process, offering areas of seabed within Scottish waters in Plan Option (PO) areas to meet the Scottish Government's 10-Gigawatt (GW) plan (CES, 2022). There are seven ScotWind developments that lie within the CNS Study Area. Muir Mhór and Campion Floating OWFs are the closest ScotWind developments to the Project, at approximately 0.2 km and 3.4 km south of the EICC, respectively, located in PO area E2. PO areas E1 and E3 are located further south of the EICC off the Aberdeenshire coast with the Bellrock, Ossian and Morven OWFs located in PO area E1, and Bowden located in PO area E3. MarramWind is located to the north of the EICC in PO area NE7. These areas are displayed in Figure 17-3. All of the sites here are currently in the early planning phases apart from Ossian and Muir Mhór which have submitted their Section 36 Consent and Marine Licence Applications (MLA).

The results of the INTOG leasing round, to support the development of innovative small-scale OWFs as well as those that will electrify and power O&G facilities, were published on 24th March 2023, with 13 developments being offered initial agreements, known as 'Exclusivity Agreements' (the Project being one of those 13 developments). Salamander is the closest INTOG development to the Project at 0.4 km from the EICC, with the Culzean Floating Offshore Wind Turbine Pilot Project being the closest to the Array Area at 16.6 km to the east. The Salamander Project is currently in planning with Section 36 Consent and MLAs submitted in April 2024. The Culzean Floating Offshore Wind Turbine Pilot Project was granted a Marine Licence in August 2024. The Culzean Floating Offshore Wind Turbine Pilot Project does not have any export cable leading to shore, but instead, a 2 km cable connecting a single floating Wind Turbine Generator (WTG) to the existing Culzean O&G infrastructure (Total Energies, 2024). In addition to Salamander, Flora OWF (currently at early planning phase) and Green Volt (consented) are also located off the coast of Peterhead at approximately 4 km south and 31.9 km north of the EICC, respectively. Further offshore, Beech 56.9 km to the north-east, Aspen 12.2 km to the north-west and Cedar 20.9 km to west-south-west of the Array Area, are floating OWFs in development under Cerulean Winds as part of their North Sea Renewables Grid (NSRG) (Cerulean Winds, 2024). The NSRG projects are all currently in early planning. Further to the south-west there are a number of projects around the Firth of Forth that lie within the CNS Study Area. The Seagreen Phase 1, Seagreen 1A and Inch Cape OWFs are all located between 15-27 km east of the Angus coastline (SeaGreen1A, 2024 SeaGreen, 2017; Inch Cape Wind Farm,

2022). Seagreen Phase 1 is fully operational while Seagreen 1A is consented. Inch Cape is currently working towards construction.

Crossings with the following OWF export cable routes are expected (see EIAR Vol. 4, Appendix 3: Crossings Schedule):

- Hywind – single crossing;
- Salamander – single crossing; and
- Muir Mhòr – single crossing[3].

It should be noted that the export cable routes for several projects at early planning phases are not yet known.

There are no wave or tidal marine renewable energy developments on the east coast of Scotland, so these forms of offshore renewable energy projects have not been considered further.

Table 17-6 List of OWFs in operation, under construction or in planning within the CNS Study Area

OWF	OPERATOR/OWNER	STATUS	MEGAWATT (MW)	DISTANCE TO PROJECT (KM)	ADDITIONAL INFORMATION
Campion Wind	Shell Wind Energy Ltd, ScottishPower Renewables (UK) Limited	Pre-Application (Early Development)	2,000	0.2	ScotWind Development (Floating OWF)
Salamander Offshore Wind Farm	Simply Blue Group, Subsea 7, Ørsted (UK) Limited	Application	100	0.4	INTOG Development (Demo Floating OWF)
Muir Mhòr (previously Mara Mhòr) Offshore Wind Farm	Fred. Olsen Renewables Ltd, Vattenfall AB	Application	798	3.4	ScotWind Development (Floating OWF)
Flora Offshore Wind Farm	BP Alternative Energy Investments	Pre-Application (Early Development)	50	4	INTOG Development (Floating OWF)
Hywind Scotland Pilot Park ('Hywind')	Equinor (previously Statoil ASA), Masdar	Operational	30	8.4	Pre-Scotwind (Floating OWF)

[3] *As shown on Figure 17-3, the Muir Mhór export cable search area splits into two branches that go north or south of Hywind. It is assumed that either the northern or southern branch will be utilised, and therefore, only one crossing is assumed.*

OWF	OPERATOR/OWNER	STATUS	MEGAWATT (MW)	DISTANCE TO PROJECT (KM)	ADDITIONAL INFORMATION
Aspen (North Sea Renewables Grid (NSRG))	Cerulean Winds	Pre-Application (Early Development)	1,008	12.2	INTOG Development (Floating OWF)
Culzean Floating Offshore Wind Turbine Pilot Project	TotalEnergies E&P UK	Consented	3	16.6	INTOG Project (Demo Floating OWF Project)
Cedar (North Sea Renewables Grid (NSRG))	Cerulean Winds	Pre-Application (Early Development)	1,008	20.9	INTOG Development (Cedar Floating OWF)
European Offshore Wind Deployment Centre (EOWDC) Aberdeen Bay.	Vattenfall Wind Power Ltd	Operational	97	23.1	Pre-Scotwind (Fixed OWF)
Green Volt Offshore Wind Farm	Flotation Energy	Consented	560	31.9	INTOG Development (Floating OWF)
Kincardine Offshore Wind Farm	Grupo COBRA	Operational	50	45.3	Pre-Scotwind (Floating OWF)
Bowdun Offshore Wind Farm	D.E.M.E. Concessions NV, Qair Marine, Aspiravi Holding NV	Pre-Application (Scoping)	1,008	48.9	Scotwind Development (Fixed OWF)
MarramWind Offshore Wind Farm	ScottishPower Renewables (UK) Limited and Shell Wind Energy Ltd	Pre-Application (Scoping)	3,000	53.1	ScotWind Development (Floating OWF)
Bellrock Offshore Wind Farm	Renantis (formerly Falck Renewables), BlueFloat Management, S.L.U	Pre-Application (Scoping)	1,200	55.0	ScotWind Development (Floating OWF)
Beech (North Sea	Cerulean Winds	Pre-Application	1,008	56.9	INTOG Development

OWF	OPERATOR/OWNER	STATUS	MEGAWATT (MW)	DISTANCE TO PROJECT (KM)	ADDITIONAL INFORMATION
Renewables Grid (NSRG))		(Early Development)			
Judy	Chrysaor Petroleum Company U.K	Pre-Application (Early Development)	15	59.7	INTOG Development (Floating OWF)
Ossian Offshore Wind Farm	SSE PLC, Marubeni Corporation, Copenhagen Infrastructure Partners	Application	3,610	68.0	ScotWind Development (Floating OWF)
Morven Offshore Wind Array Project	BP PLC, EnBW Energie Baden-Württemberg AG	Pre-Application (Scoping)	2,907	69.0	ScotWind Development (Fixed OWF)
Seagreen Alpha and Bravo Offshore Wind Farms	SSE Renewables, Total Energies, PTT Exploration, Production Public Company Limited	Operational	1,075	85.6	Pre-Scotwind (Fixed OWF)
Seagreen 1A Offshore Wind Farm	SSE Renewables, Total Energies, PTT Exploration, Production Public Company Limited	Consented	500	95.0	Pre-Scotwind (Fixed OWF)
Inch Cape Offshore Wind Farm	Red Rock Power Limited, ESB	Pre-construction	1,080	97.4	Pre-Scotwind (Fixed OWF)

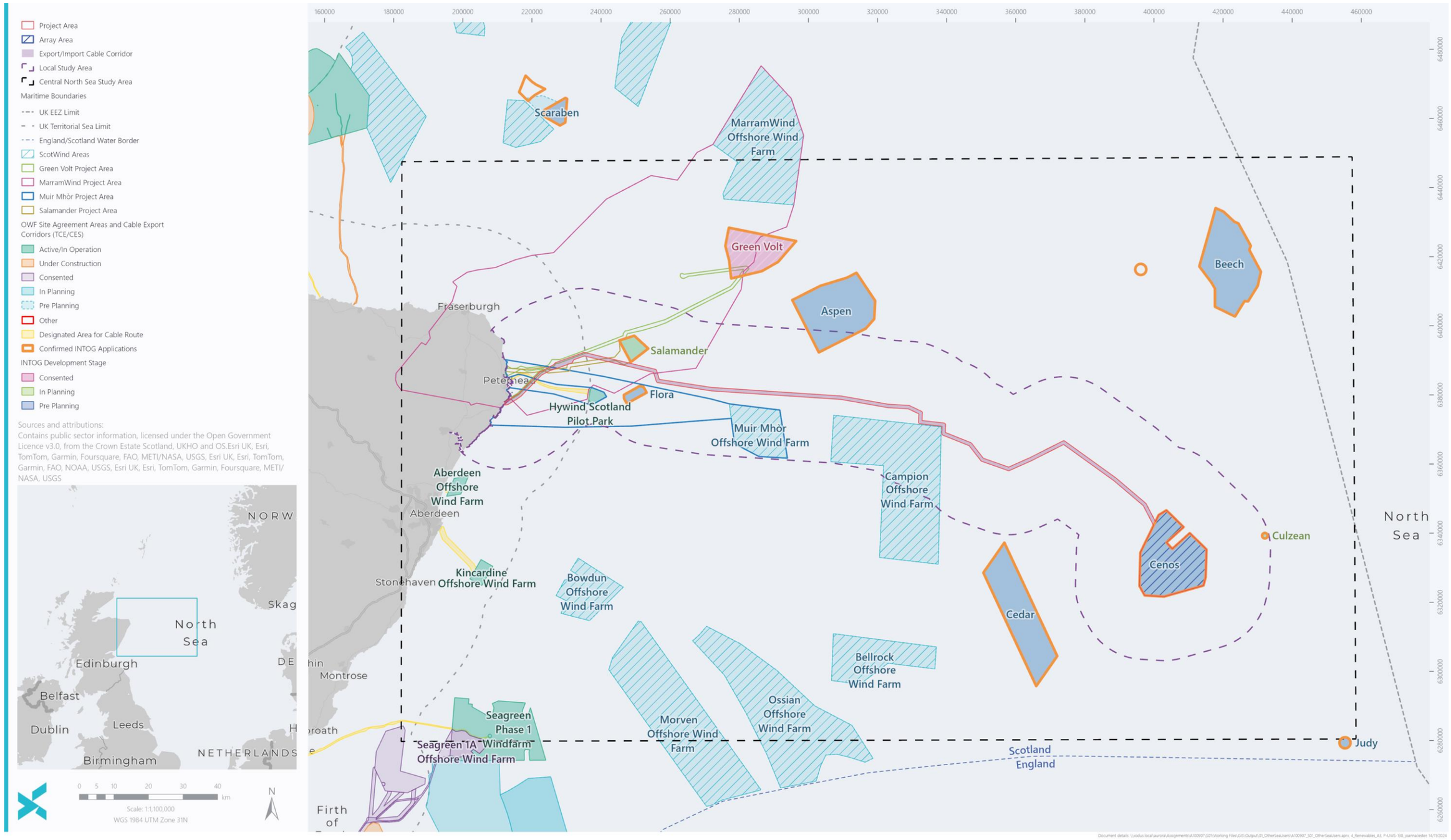

Figure 17-3 OWF development locations

17.4.4.3 Subsea infrastructure including telecommunications and power infrastructure

The Project interacts with telecommunications and power infrastructure in the CNS Study Area. The North Sea Link (NSL) is situated approximately 4 km to the south-east of the Array Area. The NSL is a High Voltage Direct Current (HVDC) subsea interconnector ('NSL HVDC cable') connecting the UK to Norway, capable of sharing power up to 1,400 Megawatts (MW).

Following that, the EICC directly overlaps with the following existing and proposed telecommunication and power cable systems (EIAR Vol. 4, Appendix 3: Crossings Schedule):

- CNSE project (Pre-Application) – three crossings;
- Tampnet Central North Sea Fibre Telecommunications Company Limited (CNSFTC) telecommunications cable (Operational) – single crossing;
- EGL2 cable (Consented) – single crossing; and
- EGL3 cable (Pre-Application) – single crossing.

The CNSE project aims to electrify O&G assets in the CNS by exporting energy from the national grid to an offshore converter station that would be connected to up to four O&G assets via subsea cabling. The marine elements of the CNSE project would consist of approximately 225 km of HVDC cabling between the landfall and an offshore converter station and up to 185 km of HVAC cabling from the offshore converter station and the participating O&G assets. The Scoping Report for the CNSE project was submitted in May 2023 (CNSE Project, 2023).

The active Tampnet CNSFTC telecommunications cable begins at Peterhead, travelling east into the CNS (Marine Directorate, 2024). The proposed EGL2 and EGL3 cables routes both landfall at Sandford Bay to the south of Peterhead. The EGL2 cable, currently consented, is to be built between Peterhead in Aberdeenshire, Scotland and Drax in North Yorkshire, England. Construction is due to commence in 2024 with EGL2 becoming operational by 2029. The EGL3 project is at an early stage, with a Scoping Report having been submitted to MD-LOT in April 2024[4]. Crossings with the EGL2 and EGL3 cable routes may be required.

The CNSE project also overlaps the Array Area, and this may result in a further two crossings with the Export/Import Cable. The number of crossings between the IACs and the CNSE project within the Array Area are uncertain as the IACs layout is not yet finalised. However, as explained in Section 17.4.4.1, up to six IACs crossings have been assumed across the Project to account for crossings with the Culzean 22" Gas Export Flowline and the CNSE project.

The subsea cable infrastructure is displayed below in Figure 17-4.

17.4.4.4 Licenced spoil disposal sites

There are two open disposal sites off the coast of Peterhead, North Buchan Ness (CR080) and Peterhead (CR071) disposal sites, both approximately 1.6 km from the EICC. The two open sites have been used for the deposition of dredged harbour material from Peterhead and/or Boddam Harbour. These are two of six sites classified as dredge spoil disposal sites in the north east Scottish marine region. These six sites were licenced in 2018 for ~10,500,000 tonnes of material of which < 5,000,000 was actually deposited (Moffat *et al.*, 2020). There are several closed sites near the EICC:

[4] https://marine.gov.scot/node/25025

- Middle Buchan Ness (CR090) – 0.7 km from the EICC;
- South Buchan Ness B (CR105) – 1.6 km from the EICC;
- South Buchan Ness (CR100) – 2.5 km from the EICC; and
- Middle Buchan Ness B (CR095) – 3.1 km from the EICC.

These sites are displayed in Figure 17-4.

17.4.4.5 UXO

The risk associated with UXO has been independently assessed in a UXO Threat and Risk Assessment (EIAR Vol. 4, Appendix 5: UXO Threat and Risk Assessment). The findings of the assessment state the risk of UXO as being 'low' within the Array Area, and 'medium' toward the western end of the EICC. Considering the degree of flexibility afforded by the design of both the Array Area and the width of the EICC, it is anticipated that it will be possible to avoid UXO through micro-siting/micro-routeing. However, where UXO are identified within the Project Area which cannot be avoided or pose a genuine threat to safe completion of construction works, clearance will be undertaken as necessary. Any required clearance, whilst deemed unlikely, would be subject to a separate MLA and associated environmental assessment to be determined by MD-LOT in consultation with relevant stakeholders.

Although UXO clearance will be subject to a separate MLA, the impacts are assessed within this EIAR for completeness using the findings of the desk based UXO Threat and Risk Assessment (EIAR Vol.4, Appendix 5: UXO Threat and Risk Assessment). The approach of seeking a separate Marine Licence for UXO clearance allows for a meaningful assessment of UXO based on actual locations, seabed conditions and actual potential threats to taxa. Whilst subject to future licensing requirements, it is anticipated that low-order methods (i.e. deflagration) would be employed, with high-order (i.e. detonation) only used where absolutely necessary.

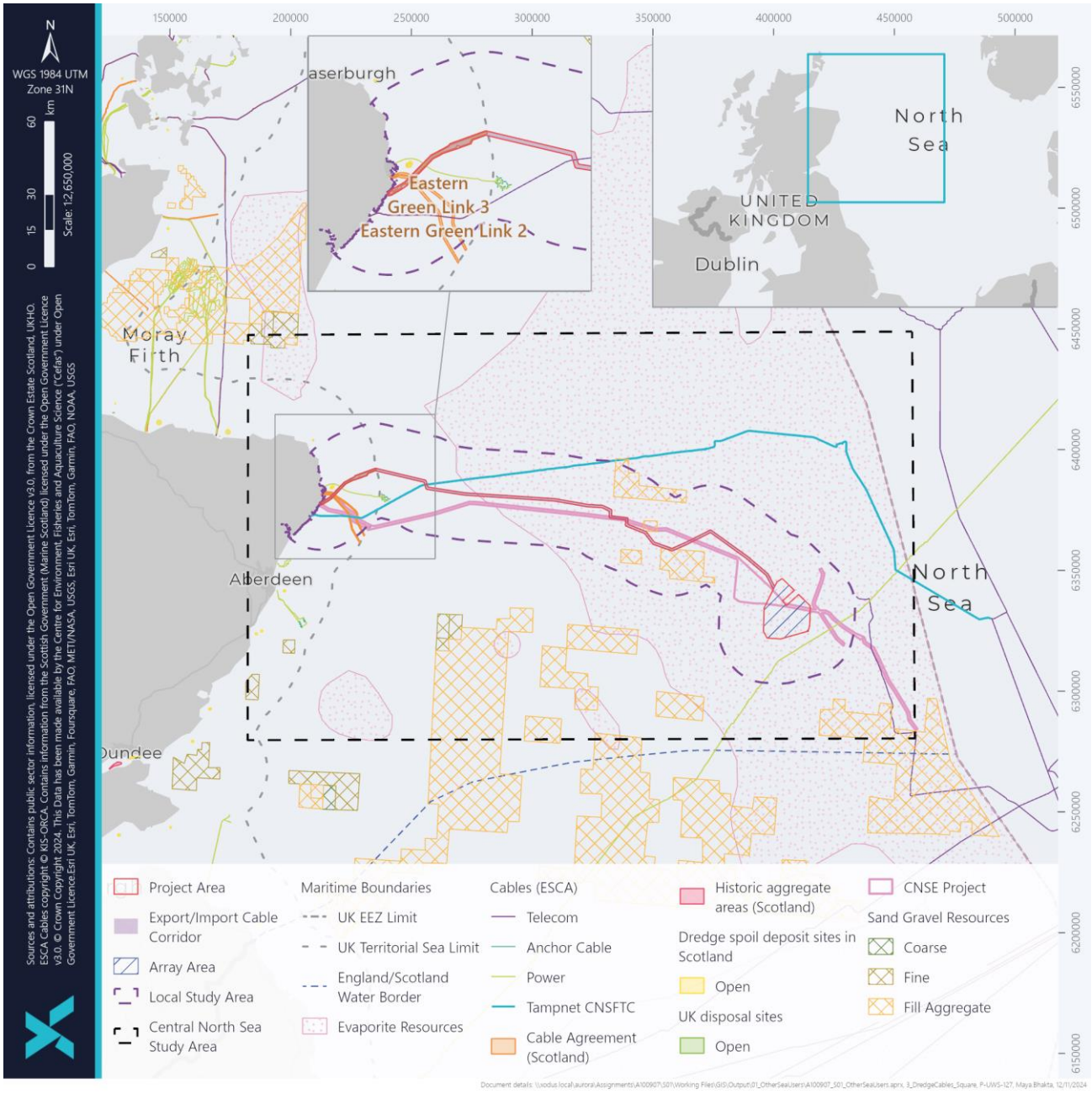

Figure 17-4 Subsea cable infrastructure, dredge disposal and marine aggregate sites[5]

[5] *It should be noted that the CES 'Cable Agreement (Scotland)' layer only extends to the 12 NM limit.*

17.4.4.6 Productive sources of marine aggregate

The Marine Directorate identifies marine aggregates in the following way: "*Marine aggregate extraction removes sand and gravel from the seabed for use as construction aggregate (in concrete), land reclamation (as fill) or beach replenishment*" (Marine Directorate, 2024). Scotland has considerable marine aggregate resources, but terrestrial deposits have traditionally been preferred. There are no current licences to extract aggregate resources from the marine environment, although there are large resources available (Moffat *et al*., 2020).

The Project will overlap with an area identified as evaporite resource by the British Geological Survey (BGS) (Green *et al*., 2013), as detailed in Figure 17-4. The areas of evaporite resource have not been used for the purposes of extraction and as such represent areas where data supports the presence of a particular mineral resource. Evaporite resources are geologically associated with petrochemicals and potentially occur extensively in parts of the North Sea. The EICC overlaps with an area identified as fill aggregate as shown in Figure 17-4. Fill aggregate represents resources suitable for contract fill and land reclamation, and are therefore, of regional importance according to Green *et al*. (2013). This is in contrast to fine or coarse aggregate resources which are considered suitable for construction or beach reclamation and are therefore deemed to be of national importance (Green *et al.*, 2013). These areas of potential resource are based on an interpretation of broadscale seabed geology data and confirmation of the nature of the sediments and suitability for extraction would be subject to a detailed survey. There is currently limited demand for marine aggregate extraction in Scottish waters, however, demand could increase in the future depending on market demands and technological advances (Moffat *et al*., 2020).

17.4.5 Future baseline

The baseline description in Section 17.4 considers both existing and proposed developments and activities for example, the future baseline for subsea cables, other offshore renewable energy developments, and O&G activities. All proposed developments in the public domain have been considered within this impact assessment and therefore, the future baseline scenario is unlikely to change substantially in the foreseeable future from that presented in Section 17.4.4. Nevertheless, it is acknowledged that the future baseline is subject to gradual change as new developments/plans are proposed and progressed, and the baseline will evolve with or without the Project being in place. Furthermore, with respect to marine aggregates, the sites that overlap with the Project Area are currently not in use but are a defined source of aggregates. Therefore, it can be stated that there may be future use that will alter this part of the environment.

17.4.6 Summary and key issues

Table 17-7 Summary and key issues for MI & OSU

	PROJECT AREA
SUMMARY AND KEY ISSUES	• The Project Area falls within a number of active licenced blocks for oil and gas activities; • The Madoes hydrocarbon field is located within the Array Area, although there is no overlap of infrastructure within the field; • A number of other oil and gas fields are present around the Array Area; • The Culzean 22" Gas Export Flowline passes through the Array Area; • The EICC will overlap with the following infrastructure: 20" Gas Fulmar A – St. Fergus Pipeline (at three locations); Forties C to Cruden Bay Pipeline; Langeled Pipeline; Cats 36" Gas Export Pipeline; • The Project is in close proximity to planned and existing OWF developments; the closest being the Campion Wind development (0.2 km from the Project) which is in early planning. The nearest operational OWF is Hywind (8.4 km from the Project); • The Project is also close to a number of planned and existing subsea and telecommunications cables; • There are a number of open and closed disposal sites located close to the Project, mostly close to the coast • A UXO Threat and Risk Assessment determined the risk of UXO as being 'low' within the Array Area, and 'medium' toward the western end of the EICC; and • There is currently limited demand for marine aggregate extraction in Scottish waters, although there are some potential productive sources of marine aggregates within the Project Area. However, these are yet to be pursued.

17.4.7 Data gaps and uncertainties

The baseline environment detailed in Section 17.4 above has been established through an extensive review of the available data sources and literature (Table 17-3), and information gained through consultation. Overall, there is considered to be a robust baseline available to inform the impact assessment and there are no significant data gaps regarding MI & OSU.

The key areas of uncertainty include UXO presence within the Project Area, as this cannot be confirmed until further Project site-specific surveys are conducted. However, as noted in Section 17.4.4.5, UXO clearance activities will be the subject of a separate MLA. There is also a degree of uncertainty in relation to the development and timings of other offshore infrastructure.

17.5 Impact assessment methodology

17.5.1 Impacts requiring assessment

The impacts identified as requiring consideration for MI & OSU are listed in Table 17-8. Information on the nature of impact (i.e. direct, or indirect) is also described.

Table 17-8 Impacts requiring assessment for MI & OSU

POTENTIAL IMPACT	NATURE OF IMPACT
Construction	
Potential effects on existing oil and gas operations	Direct
Potential effects on other offshore renewable energy developments	Direct
Potential effects on subsea telecommunications and power infrastructure	Direct
Potential effects on licenced dredge spoil disposal sites	Direct
Potential effects of Unexploded Ordinance (UXO) clearance (if required)	Direct
Potential sterilisation of areas for marine aggregates	Direct
Operation and maintenance	
Potential effects on existing oil and gas operations	Direct
Potential effects on other renewable energy developments	Direct
Decommissioning*	
Potential effects on existing oil and gas operations	Direct
Potential effects on other offshore renewable energy developments	Direct
Potential effects on subsea telecommunications and power infrastructure	Direct
Potential effects on licenced dredge spoil disposal sites	Direct
Potential effects of Unexploded Ordinance (UXO) clearance (if required)	Direct
Potential sterilisation of areas for marine aggregates	Direct

* In the absence of detailed information regarding decommissioning works, and unless otherwise stated, the impacts during the decommissioning are considered analogous with, or likely less than, those of the construction phase. Where this is not the case, decommissioning impacts have been listed separately and have been assessed in Section 17.6.1.

17.5.2 Impacts scoped out of the assessment

The impacts scoped out of the assessment during EIA scoping, and the justification for this, are listed in Table 17-9. These were agreed within the Scoping Opinion, the responses of which have been displayed in Table 17-2 for further reference. Additionally, the embedded mitigation that was utilised to further justify scoping these receptors out for further assessment within this chapter is provided in Table 17-12.

Table 17-9 Impacts scoped out for MI & OSU

IMPACT SCOPED OUT	JUSTIFICATION
Construction	
Potential effects on military and defence activities	The nearest exercise area the Moray Firth South, is approximately 40 km north and slightly west from Peterhead and nearest danger area is Drums Links approximately 30 km south along the coast to Aberdeen. These are considered sufficiently distant to lead to no potential significant effects. The effects of the Project on military and defence activities are scoped-out. The effects of the Project on military aviation are covered in EIAR Vol. 3, Chapter 18: Military and Civil Aviation.
Potential effects on aquaculture receptors	No active aquaculture sites have been identified in the local Study Area. The closest site is located approximately 40 km from the Project Area to the south in Aberdeen. Therefore, this effect will be scoped out.
Potential effects on planned areas for CCS	No infrastructure for capture or use of carbon currently exists within the CNS Study Area. Two NSTA CCS licence areas, CS011 and CS003, the latter which overlaps with the CCS Acorn CES Lease Site, exist within the CNS Study Area, approximately 50 km to the north the Project Area. Based on the distance to the Project Area, the effects of the Project on CCS development are not expected to be significant and are therefore scoped out.
Potential effects on ferry routes	There are no known ferry routes which pass through, or close to, the Array Area (see EIAR Vol. 3, Chapter 15: Shipping and Navigation). The EICC will cross over one known ferry route (Aberdeen to Orkney and Shetland), however the construction impacts will be temporary. The Project will ensure timely and efficient distribution of Notice to Mariners (NtM) of the position and nature of works associated with the Project. Therefore, this effect is scoped out.

IMPACT SCOPED OUT	JUSTIFICATION
Operation and maintenance	
Potential effects on military and defence activities	As described above for construction.
Potential effects on subsea telecommunications and power infrastructure	During the operation and maintenance phase, any impact on subsea cables will be highly localised, temporary and mitigated though embedded mitigation measures. Any risk of damage to third-party assets at crossing locations (e.g. the Tampnet CNSFTC) during remedial works will be low given that crossings will have been installed in line with industry standard practice and in accordance with crossing and proximity agreements. Therefore, the effects of the Project are scoped out.
Potential effects on licenced dredge spoil disposal sites	There is a cluster of two active (North Buchan Ness (CR080) and Peterhead (CR071) disposal sites) and four closed dredge disposal sites within the local Study Area (see Section 17.4.4.4). During the operation and maintenance phase, any disruption to the use of dredge disposal sites will be highly localised, temporary and mitigated through embedded mitigation measures. Therefore, the effects of the Project are scoped out.
Potential effects of UXO clearance (if required)	Any UXO in the vicinity of the Project Area will be identified during pre-construction surveys. Confirmed UXO will either be avoided via micro-siting or safely disposed of ahead of construction. Therefore, the likelihood for UXO to be discovered and subsequently cleared in the operation and maintenance phase is extremely low and this impact is scoped out.
Potential sterilisation of areas for marine aggregates	During the operation and maintenance phase, any impact on potential marine aggregate resources will be highly localised, temporary and mitigated through embedded mitigation measures. Therefore, the effects of the Project are scoped out.
Potential effects on aquaculture receptors	As described above for construction.
Potential effects on planned areas for CCS	As described above for construction.
Potential effects on ferry routes	As described above for construction.

IMPACT SCOPED OUT	JUSTIFICATION
Decommissioning	
Potential effects on military and defence activities	As described above for construction
Potential effects on aquaculture receptors	As described above for construction.
Potential effects on planned areas for CCS	As described above for construction.
Potential effects on ferry routes	As described above for construction.

17.5.3 Assessment methodology

An assessment of potential effects is provided separately for the construction, operation and maintenance and decommissioning phases.

The assessment for MI & OSU is undertaken following the principles set out in EIAR Vol. 2, Chapter 7: 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 17-10 and Table 17-11.

Table 17-10 Sensitivity criteria

SENSITIVITY OF RECEPTOR	DEFINITION
High	• Receptor cannot adapt or tolerate change and will not recover from the effect; and/or • Receptor of economic value to an extent that is international or nationally important.
Medium	• Receptor has limited adaptability, can tolerate minor changes, and will recover within weeks of effect; and/or • Receptor of economic value to an extent that is regionally important.
Low	• Receptor can easily adapt, tolerate medium changes, and can recover within days of the effect; and/or • Receptor of economic value to an extent that is locally important.
Negligible	• Receptor can fully adapt, tolerate high changes, and can recover immediately; and/or • Receptor is widespread/common and is of low economic value.

Table 17-11 Magnitude of effect criteria

MAGNITUDE CRITERIA	DEFINITION
High	• Total change or major alteration to key elements/features of baseline conditions (e.g. damage to the asset which results in permanent or long-term inoperability or complete loss of access); • Effect occurs over a large scale or spatial geographical extent and/or is long-term or permanent in nature; and/or • High frequency (occurring repeatedly or continuously for a long period of time) and/or at high intensity.
Medium	• Partial change or alteration to one or more key elements/features of the baseline conditions (e.g. damage to the asset which results in medium-term inoperability or a significant loss of access); • Effect occurs over a medium scale/spatial extent and/or has a medium-term duration; and/or • Medium to high frequency (occurring repeatedly or continuously for a moderate length of time) and/or at moderate intensity or occurring occasionally/intermittently for short periods of time but at a moderate to high intensity.
Low	• Minor shift away from the baseline conditions (e.g. damage to the asset which results in temporary inoperability or temporary loss of access); • Effect occurs over a local to medium scale/spatial extent and/or has a short to medium-term duration; and/or • Effect is unlikely to occur or at a low frequency (occurring occasionally/intermittently for short periods of time at a low intensity).
Negligible	• Very slight change from baseline conditions (e.g. miniscule damage to the asset which results in short-term inoperability or minor loss of access); • Effect is highly localised and short-term with full rapid recovery expected to result in very slight or imperceptible changes to baseline conditions or receptor population; and/or • The effect is very unlikely to occur and if it does will occur at very low frequency or intensity.
No change	• No change to the baseline conditions.

The consequence and significance of effect is then determined using the matrix provided in EIAR Vol.2, Chapter 7: EIA Methodology.

17.5.4 Embedded mitigation

As described in EIAR Vol. 2, Chapter 5: Project Description, certain measures (primary and tertiary mitigation) have been adopted as part of the Project development process to reduce the potential for impacts to the environment, as presented in Table 17-12. 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 MI & OSU receptors.

Table 17-12 Embedded mitigation measures relevant to MI & OSU

CODE	MITIGATION MEASURE	TYPE	DESCRIPTION	SECURED BY
MM-004	Micro-siting of FTUs and associated offshore infrastructure, including cable routes	Primary	Pre-construction cable route survey to confirm the condition of the seabed and that no significant changes have occurred from previous surveys, confirm the presence of morphological features and the requirement for micro-siting around these or completion of seabed preparation works. The final Array Area layout (including IACs) and Import/Export Cable Route will be presented within the Development Specification and Layout Plan (DSLP) and will include micro-siting of infrastructure to avoid sensitive habitats or features. Where possible, the Export/Import Cable Route will aim to avoid sensitive habitats and, where this is not practicable, the route will be designed to achieve the least impact to sensitive habitats or features.	Final layout will be captured in the DSLP, required under Section 36 Consent and/or Marine Licence conditions.
MM-006	Environmental Management Plan (EMP)	Tertiary	The EMP will set out procedures to ensure all activities with the potential to affect the environment are appropriately managed and will include a description of planned activities and procedures, roles and responsibilities, pollution control and spillage response plans, incident reporting, chemical usage requirements, waste management plans, plant service procedures, communication and reporting structures, and programme of work. It will detail the final design selected and take into account Marine Licence conditions and commitments. The EMP will additionally include an Invasive Non Native Species (INNS) Management Plan (INNSMP) and a Marine Pollution Contingency Plan (MPCP) and will be developed in consultation with stakeholders.	The EMP, including the INNSMP and MPCP, will be required under Section 36 Consent and/or Marine Licence conditions. An outline EMP is provided as part of the Application **EIAR Vol. 4 Appendix 32: Outline EMP**.
MM-009	Decommissioning Programme	Tertiary	The development of, and adherence to, a Decommissioning Programme, approved by Scottish Ministers prior to construction and	The Decommissioning Programme will be required under Section 105 of the

CODE	MITIGATION MEASURE	TYPE	DESCRIPTION	SECURED BY
			updated throughout the Project's operational life. This will be written in accordance with applicable guidance and will detail the required activities, programme and environmental management for decommissioning.	Energy Act 2004 (as amended) and a condition of the Section 36 Consent.
MM-018	UXO clearance approach	Primary	In the event that a UXO is identified within the Project construction area, a hierarchy of mitigation will be applied: 1. Micro-siting/micro-rerouteing will be used to avoid UXO in the first instance. 2. Where micro- siting/micro-rerouting is not possible, the UXO will be moved to a safe location out with the corridor or working area; 3. In cases where UXO cannot be avoided or pose a safety concern, Low Order clearance methods, such as deflagration will be applied. 4. In cases where UXO cannot be avoided or pose a safety concern and Low Order clearance methods have not been successful, High Order (i.e. detonation) may be required. However, this method will only be used where absolutely necessary, in agreement with Scottish Ministers.	Any clearance activity will be subject to a separate Marine Licence and European Protected Species (EPS) Licence, which will be accompanied by supporting environmental information.
MM-028	Promulgation of information, such as NtM, Kingfisher notifications and other navigational warnings	Tertiary	Timely and efficient distribution of NtM and Kingfisher notifications will inform third party vessels of the position and nature of works associated with the Project. Information will include but not be limited to vessel routes, timings and locations, safety zones and advisory safe passing distances as required.	Procedures will be detailed within the Navigational Safety Plan (NSP) and the Fisheries Management and Mitigation Strategy (FMMS), required under Section 36 and/or Marine Licence Conditions.

CODE	MITIGATION MEASURE	TYPE	DESCRIPTION	SECURED BY
				An outline FMMS is provided as part of the Application EIAR Vol. 4 Appendix 34: Outline FMMS.
MM-030	Procedure for accidental deposit of object(s) at sea	Tertiary	A procedure will be developed and implemented to manage and mitigate the effects of any accidental deposit of object(s) on the seabed during works associated with the Project. This procedure will align with the Marine Directorate's (2024) Accidental Deposit of an Object at Sea Guidance. Accidental deposit(s) will be reported using published reporting forms (Marine Directorate, November 2024) and relevant parties will be notified at the time of recognition. Recovery will be attempted by the Project for all deposits and confirmed whether successful with the regulator and relevant stakeholders.	Procedures will be detailed within the EMP and FMMS, required under Section 36 and/or Marine Licence conditions. An outline FMMS and EMP is provided as part of the Application EIAR Vol. 4 Appendix 34: Outline FMMS and EIAR Vol. 4 Appendix 32: Outline EMP
MM-031	Lighting and Marking Plan (LMP)	Tertiary	The LMP will set out specific requirements in terms of marine lighting and marking of the WTGs and OSCPs during the construction and operational phases. This will comply with NLB requirements, the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) G1162 Guidance on the Marking of Offshore Man-Made Structures (IALA, 2021), and Marine Guidance Note (MGN) 654 (MCA, 2021).	Lighting and marking requirements will be detailed in the LMP, required under Section 36 Consent and/or Marine Licence conditions.
MM-035	Application for and implementation of safety zones	Primary	Safety zones will be applied during construction and periods of major maintenance, and either statutory or advisory safety zones during operation (to be agreed during further consultation). Full details will be provided in the safety zone application; however, it is likely that the standard set of safety zones will be applied for:	An application for safety zones will be made in accordance with Section 95 of the Energy Act 2004 and the Electricity (Offshore Generating Stations) (Safety Zones) (Application Procedures and Control of Access) Regulations 2007. Details will be included within the NSP,

CODE	MITIGATION MEASURE	TYPE	DESCRIPTION	SECURED BY
			• Statutory 500 m rolling safety zones around FTUs and OSCPs where construction is ongoing as denoted by the presence of a construction vessel; • Safety zones of 50 m will be in place around FTUs and OSCPs during the construction phase when construction is not underway prior to commissioning of the windfarm; and • Temporary 500 m safety zones around structures where major maintenance is ongoing (as defined in The Electricity (Offshore Generating Stations) (Safety Zones) (Application Procedures and Control of Access) Regulations 2007). Where safety zones do not apply (e.g., around cable installation), use of advisory safe passing distances will be implemented.	required under Section 36 Consent and/or Marine Licence conditions.
MM-037	Compliance with Marine Guidance Note 654	Tertiary	The Project will comply with MGN 654 and its annexes to ensure that impacts on navigational safety and emergency response are considered, assessed and mitigated where necessary. This includes post-consent completion of the Search and Rescue (SAR) Checklist, which includes the completion of an Emergency Response Cooperation Plan (ERCoP). This will include, but is not limited to: • Layout design; • Agreement of SAR checklist and ERCoP with MCA; • Hydrographic surveys; and Maximum 5% reduction in surrounding charted depths referenced to Chart Datum unless otherwise agreed with the Scottish Ministers in consultation with MCA.	Compliance with MGN 654 will be detailed within the NSP and ERCoP required under Section 36 Consent and/or Marine Licence conditions.

CODE	MITIGATION MEASURE	TYPE	DESCRIPTION	SECURED BY
MM-040	Crossing and proximity agreements	Primary	Crossing and proximity agreements for existing seabed infrastructure such as pipelines and cables will be agreed post-consent with the relevant asset owners, once the Project layout has been finalised. It will be the responsibility of the respective Pipeline Asset Operators to inform the NSTA and also the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED's) - Offshore Decommissioning Unit (OPRED-ODU) to determine if any updates to existing Pipeline Works Authorisations (PWAs) or decommissioning plans are required. Cable crossings will be perpendicular (or as close as possible to 90°) to minimise the physical interaction and therefore limit the risk of damage to the existing pipeline or cable.	Secured through consultation with relevant stakeholders and the commitment of the Applicant to discuss and establish crossing and proximity agreements with relevant third-parties. This will be part of a commitments register that will be tracked as the Project progresses alongside Section 36 Consent and Marine Licence conditions.

17.5.5 Worst-case scenario

As detailed in EIAR Vol. 2, Chapter 7: EIA Methodology, this assessment considers the worst-case scenario for the Project parameters which are predicted to result in the greatest environmental impact, known as the 'realistic worst-case scenario'. The worst-case scenario represents the potential impact on a receptor that would result in the greatest potential for change.

Given that the worst-case scenario is based on the design option (or combination of options) that represents the greatest potential for change, confidence can be held that development of any alternative options within the design parameters will give rise to no worse effects than those assessed in this impact assessment. Table 17-13 presents the worst-case scenario for potential impacts on MI & OSU during construction, operation and maintenance and decommissioning.

Table 17-13 Worst-case scenario specific to MI & OSU impact assessment

POTENTIAL IMPACT	WORST-CASE SCENARIO	JUSTIFICATION
Construction		
Potential effects on existing oil and gas operations	Below information is applicable for all potential impacts. • Pre-construction activities including Project specific surveys, site investigation and site preparation: - Clearance of up to 51 UXO's within the Project Area, with 50 cleared by Low Order Deflagration (LOD) with a donor charge of 0.08 kg and one High Order Detonation (HOD), with a charge weight of 227 kg and 5 kg donor charge; - Pre-Lay Grapnel Run (PLGR) and boulder clearance across the Project Area. o PLGR across the entire length of all cables (230 km for Export/Import Cable and 280 km of IACs on the seabed) at a maximum disturbance width of 0.01 km; o Boulder clearance disturbance width of 20 m along 59.9 km of the Export/Import Cable and the entire length of the IACs on the seabed (280 km). • Construction of: - A maximum of 95 FTUs; - Up to two OSCPs; - Up to 350 km of IACs (280 km of buried, static cabling and 70 km of dynamic cabling) within the Array Area;	The parameters that represent the greatest obstruction to access for existing oil and gas operations in the vicinity of the Project based on the maximum area and duration of construction activities.
Potential effects on other offshore renewable energy developments		The parameters that represent the greatest obstruction to access for offshore renewable energy development operations in the vicinity of the Project based on the maximum area and duration of construction activities.
Potential effects on subsea telecommunications and power infrastructure		The parameters that represent the greatest obstruction to proposed and existing subsea telecommunication and power cables, in terms of cable laying and cable crossings, in the vicinity of the Project based on the maximum area and duration of construction activities.
Potential effects on licenced dredge spoil disposal sites		The parameters that represent the greatest obstruction to access for existing licenced dredged spoil disposal sites in the vicinity of the Project based on the maximum area and duration of construction activities

POTENTIAL IMPACT	WORST-CASE SCENARIO	JUSTIFICATION
Potential effects of UXO clearance (if required)	- Export/Import Cable: a bundle of two HVDC cables and one fibre-optic cable in a single trench with a total route length of 230 km; - Landfall requiring Horizontal Directional Drilling (HDD); - Up to 20 cable/pipeline crossings along the length of the Export/Import Cable route with a total spatial footprint of 9,063 m^2 per crossing and a total footprint area for crossing infrastructure of 181,260 m^2; and - Up to eight crossings within the Array Area (footprint of 36,480 m^2). • 500 m statutory safety zones during construction activities around the outer edge of FTUs and OSCPs, implemented on a rolling basis. Safety zones will be reduced to 50 m around any FTUs and OSCPs where construction works are completed, but are awaiting commissioning; • 500 m advisory clearance distances around construction vessels; • A maximum offshore construction period of six years; and • Up to 22 vessels operating simultaneously during construction.	The risk associated with UXO has been independently assessed as being 'low' within the Array Area and 'medium' toward the western end of the EICC **(EIAR Vol. 4, Appendix 5: UXO Threat and Risk Assessment)**. It is anticipated that it will be possible to avoid UXO through micro-siting/micro-routeing. However, where UXO are identified within the Project Area which cannot be avoided or which pose a genuine threat to the safe completion of construction works, clearance will be undertaken as necessary.
Potential sterilisation of areas for marine aggregates	• Construction of: - Export/Import Cable: A bundle of two HVDC cables and one fibre-optic cable in a single trench with a total route length of 230 km from the OSCPs to the landfall; and - A maximum offshore construction period of six years.	Sterilisation of areas for marine aggregates refers to any activities that would prevent future extraction of a material or resource. Only the EICC overlaps areas of potential aggregate resource. Therefore, the maximum area and duration for the construction of the Export/Import Cable represent the greatest potential for sterilisation of marine aggregates.

POTENTIAL IMPACT	WORST-CASE SCENARIO	JUSTIFICATION
Operations and Maintenance		
Potential effects on existing oil and gas operations	• Maximum operational life of 35 years; • Presence of: - A maximum of 95 FTUs; - Up to two OSCPs; - Up to 120 IACs with a total length of 350 km (280 km on the seabed and 70 km in the water column) within the Array Area o Burial is the preferred protection method. No rock placement, as a cable protection method, will be required within the Array Area except at cable/pipeline crossings and the OSCPs • Export/Import Cable: a bundle of two HVDC cables and one fibre-optic cable in a single trench with a total route length of 230 km: - 100% cable buried within the East of Gannet and Montrose Fields NCMPA (except for pipeline and cable crossings); and - 95% cable buried between 12 NM and NCMPA (except for pipeline and cable crossings). - Landfall requiring Horizontal Directional Drilling (HDD); - Up to 20 cable/pipeline crossings along the length of the Export/Import Cable route with a total spatial footprint of 9,063 m^2 per crossing and a total footprint area for crossing infrastructure of 181,260 m^2; and - Up to eight crossings within the Array Area (footprint of 36,480 m^2). • Maintenance activities including: - Routine inspections of FTUs, OSCPs, foundations and cables;	The parameters that represent the greatest obstruction to access for existing oil and gas operations in the vicinity of the Project based on the maximum area and duration of operation and maintenance activities.

POTENTIAL IMPACT	WORST-CASE SCENARIO	JUSTIFICATION
	- Up to two major component exchanges per FTU involving a tow back to shore (i.e. up to 190 operations); - Up to three major component exchanges per FTU conducted in-situ; - Re-tensioning of each mooring line twice over the operational lifetime with up to 10% of mooring lines requiring replacement; - Up to 10% of IACs requiring repair (e.g. deburial and reburial) and up to 10% of IACs requiring replacement; and - Up to four Export / Import Cable repairs. - Up to 10 vessels operating simultaneously during operation and maintenance phase.	
Decommissioning		
In the absence of detailed decommissioning activities, the implications for MI & OSU are similar, or likely less, to the worst-case scenarios for those outlined during the construction phase. Therefore, the worst-case parameters defined for the construction phase also apply to the decommissioning phase. More details are available on the decommissioning approach in EIAR Vol. 2, Chapter 5: Project Description.		

17.6 Assessment of potential effects

17.6.1 Potential effects during construction

17.6.1.1 Potential effects on existing oil and gas operations

There are several pathways in which the Project could affect existing or planned O&G operations. Firstly, temporary disruption of O&G operations may arise from increased presence of vessels and safety zones during pre-construction (e.g. site preparation) and construction activities (e.g. cable installation). Secondly, construction activities in proximity to pipelines (including at crossing locations) have the potential to damage existing assets, and lastly, there is the potential that pre-construction and construction activities could obstruct exploration activities in overlapping licenced blocks (e.g. seismic surveys). Navigational impacts to vessels associated with O&G activities have been assessed in EIAR Vol. 3, Chapter 15: Shipping and Navigation while any impacts on the helicopter operations at nearby platforms have been covered in EIAR Vol. 3, Chapter 18: Military and Civil Aviation. Any impacts assessed are based on the worst-case scenario provided in Section 17.5.5.

As discussed in Section 17.4.4.1, there are a number of O&G assets, both surface and subsurface within the vicinity of the Project Area. The Array Area overlaps with Blocks 22/28a, 22/28d and 22/23b and directly borders block 22/29c to the east and parts of the active Madoes hydrocarbon field (see Figure 17-2). The Madoes field is producing and transports crude oil and condensate and natural gas to the ETAP platforms via the ETAP Madoes 10" Production Pipeline and the ETAP Madoes 4" Gas Lift. The Culzean 22" Gas Export Flowline is the only pipeline of note that intersects with the Array Area directly and the IACs may cross this asset at several locations. The exact number of IACs crossings is unknown as the IACs layout has not yet been finalised, however, a total of up to six IACs crossings are assumed to encompass crossing locations with the Culzean 22" Gas Export Flowline and the CNSE project cables (see Section 17.6.1.3).

The EICC also crosses several licenced blocks, including 22/21d which was recently awarded as part of the 33rd O&G licensing round. Additionally, the EICC crosses the 20" Gas fulmar A – St. Fergus pipeline at three locations and the Cats 36" Gas Export Pipeline, Forties C to Cruden Bay – PL721, Forties C to Cruden Bay – PL8, and the Langeled Pipeline at one location each. The EICC also crosses the Durward Manifold to Dauntless Oil, Water and Gas Lines, however, these pipelines are not currently in use.

The O&G industry is considered to be of national economic importance, and any disruption to activities (production or exploration) or damage to surface or subsurface infrastructure during construction has the potential to greatly disrupt O&G operations. All the infrastructure discussed above is active and is therefore considered economically viable. Due to this, there is the possibility for the construction of the Project to impact these O&G activities, especially on the Madoes field due to its proximity to the Array Area. Therefore, the sensitivity of this receptor is high.

Relevant embedded mitigation measures (see Table 17-12) will be applied to reduce any potential disruption or damage to existing O&G assets caused by the increased presence of vessels and safety zones. There will be distribution of NtMs prior to construction and ongoing consultation between the Applicant and relevant O&G operators as part of the embedded mitigation. 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. With respect to the infrastructure in the Madoes field, as this infrastructure is subsurface, only infrequent access is expected to be

required, and therefore, significant disruption to activities is not expected with the implementation of embedded mitigation.

Any potential for damage to pipelines will be mitigated through crossing and proximity agreements and the Applicant will account for O&G infrastructure within the Array Area at detailed design with regard to the positioning of FTUs and OSCPs. Therefore, the potential for damage to existing assets is very low.

Lastly, any obstruction to future exploration or development in licenced blocks that overlap the Project Area will also be managed through embedded mitigation measures (see Table 17-12). Future exploration or development activities in the licenced blocks that overlap the Project Area are currently not known. However, the Applicant will engage with relevant licencees to ensure the correct steps are taken to minimise any damage or disruption caused.

Taking the embedded mitigation measures into account, any disruption to O&G activities during the construction phase through the impact pathways described above will be temporary, highly localised, and only result in a short-term temporary loss of access and a very low potential for damage. Therefore, the effect is defined as being of low magnitude.

Evaluation of significance

Taking the high sensitivity of the O&G industry and the low magnitude of the effect, the overall effect on existing O&G operations during construction is considered to be minor and not significant in EIA terms.

Sensitivity	Magnitude of effect	Consequence
High	Low	Minor

Impact significance – NOT SIGNIFICANT

17.6.1.2 Potential effects on other offshore renewable energy developments

There are several pathways in which the Project could impact other offshore renewable energy developments. As with O&G, temporary disruption may arise from increased presence of vessels and safety zones during pre-construction (e.g. site preparation) and construction activities (e.g. floating foundation installation). Secondly, construction activities in proximity to offshore renewable energy export cables (including at crossing locations) have the potential to damage existing or planned assets (e.g. Hywind and Salamander). As with O&G, navigational impacts to vessels associated with other offshore renewable energy activities have been assessed in EIAR Vol. 3, Chapter 15: Shipping and Navigation while any impacts on the helicopter operations have been covered in EIAR Vol. 3, Chapter 18: Military and Civil Aviation. Any impacts assessed are based on the worst-case scenario provided in Section 17.5.5.

As stated in Section 17.4.4.2, UK waters, in particular the North Sea, are a current focus for significant OWF development activity. The closest operational OWF to the Project Area is Hywind, with an array area that is 8.4 km from the EICC. Furthermore, there are several projects in planning (e.g. OWF agreement for lease areas) identified in the CNS Study Area, with the closest being Campion, 0.2 km from the EICC, and the Salamander Project, currently in planning (Section 36 Consent and MLA submitted in April 2024), with its array area located 0.4 km north of the EICC.

The EICC also directly overlaps with either operational or planned export cables for a number of projects (i.e. Hywind, Salamander and Muir Mhòr) as displayed in Figure 17-3 that will require cable crossings.

The offshore renewable energy industry is considered to be of national economic importance, and any disruption to activities or damage to project infrastructure during construction has the potential to greatly disrupt operations. Due to this, there is the possibility for the construction of the Project to impact these renewable energy activities, especially nearby projects such as Salamander, Hywind Scotland, Campion, Green Volt, Muir Mhòr or Flora due to either their proximity or overlap with the Project (within 10 km). Therefore, the sensitivity of this receptor is high.

Relevant embedded mitigation measures (see Table 17-12) will be applied to reduce any potential disruption or damage to offshore renewable energy infrastructure. There will be distribution of NtMs prior to construction and ongoing consultation between the Applicant and relevant offshore renewable energy developers as part of the embedded mitigation. Hywind is operational, and therefore, access is likely to only be required intermittently. Furthermore, the majority of the EICC and Array Area construction activities would not interact with Hywind due to the geographical separation between the Project Area and the Hywind array area. Any cable crossings with the Hywind export cable route will be mitigated through crossing and proximity agreements as outlined in Table 17-12.

Other offshore renewable energy developments may require access more frequently if being constructed concurrently with the Project. For example, Salamander Offshore Wind Farm construction is expected to occur between Q2 2028 to Q4 2029, and therefore, if there are any slight delays to this construction timeline, there could be an overlap with the construction of the Project. The construction period of CampionWind is not known but it is also possible that this could overlap with the Project, in addition to other OWFs planned to be constructed in the vicinity of 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. Consultation with the relevant developers (e.g. Salamander) will be ongoing throughout the course of the activities during construction.

Any potential for damage to third-party export cables will be mitigated through crossing and proximity agreements and where possible the Export/Import Cable and the third-party export cable will cross at a near right angle, streamlining the crossing installation and the length of protection required. Therefore, the potential for damage to offshore renewable energy developments is considered to be very low.

Considering the above, and with the implementation of embedded mitigation measures, any disruption to offshore renewable energy developments during the construction phase will be temporary, highly localised, and only result in a short-term temporary loss of access and a very low potential for damage. Therefore, the effect is defined as being of low magnitude.

Evaluation of significance

Taking the high sensitivity of offshore renewable energy industry and the low magnitude of the effect the overall effect on other offshore renewable energy developments during construction is considered to be minor and not significant in EIA terms.

Sensitivity	Magnitude of effect	Consequence
High	Low	Minor

Impact significance – NOT SIGNIFICANT

17.6.1.3 Potential effects on subsea telecommunications and power infrastructure

There are several pathways in which the Project could affect subsea telecommunications and power infrastructure. As with O&G and offshore renewable energy developments, temporary disruption may arise from increased presence of vessels and safety zones during pre-construction (e.g. site preparation) and construction activities (e.g. cable installation). Activities in proximity to cables (including at crossings) also have the potential to result in damage. Navigational impacts to vessels nearby to subsea telecommunications and power infrastructure have been assessed in EIAR Vol.3, Chapter 15: Shipping and Navigation. Any impacts assessed are based on the worst-case scenario provided in Section 17.5.5.

As discussed in Section 17.4.4.3, the Project interacts with telecommunications and power infrastructure in the CNS. The CNSE project overlaps the EICC and Array Area, the NSL HVDC cable is situated approximately 4 km to the south-east of the Array Area and the EICC directly also overlaps with EGL2, EGL3 and the Tampnet CNSFTC telecommunications cable (see Figure 17-4). Overall, the subsea cables potentially affected by the Project are of an economic value to an extent that they are nationally important, and internationally important in the case of the NSL HVDC and Tampnet CNSFTC telecommunications cables. Therefore, subsea telecommunications and power infrastructure are assessed to be of high sensitivity.

Pre-construction activities, construction of infrastructure and the implementation of safety zones and advisory safe clearance distances may obstruct activities associated with subsea cable construction, operation, and maintenance. The Project will not directly overlap with the NSL HVDC cable, although it is near the Array Area (approx. 4 km). It is expected that given the distribution of NtMs, third-party vessels associated with operations and maintenance of this existing cable (including any future cable repair/replacement activities) will be able to plan and re-route, as necessary. Access to existing cables is only required on an ad-hoc basis and given that there is no overlap directly with the Project Area, any disruption to operation and maintenance activities is expected to be minimal. Taking the embedded mitigation measures into account, any disruption to the NSL HVDC cable will be highly localised and result in only a minor loss of access (if at all). Overall, the effect on NSL HVDC cable is of negligible magnitude.

As the CNSE project, EGL2, EGL3 and Tampnet CNSFTC telecommunications cables will overlap the Project Area, there is a greater potential for access to be obstructed when compared with the NSL HVDC cable. Access to the Tampnet CNSFTC telecommunications cable is expected to only be required on an ad hoc basis as this cable is already operational, and therefore, any disruption of activities is anticipated to be minimal. According to the CNSE Scoping Report, the CNSE project is expected to be operational by December 2028 and therefore the construction

period of this project would not overlap with that of the Project (CNSE Project, 2023). The construction schedule for the EGL2 cable is set to begin construction in 2025 with pre-construction activities taking place in 2024. It is anticipated that the cable will be fully operational by 2029. The construction of EGL3 is due to commence in 2028 with the cable being operational by 2030/31. With the current indicative timeline (see EIAR Vol. 2, Chapter 5: Project Description), the Project is expected to begin construction in 2030, indicating there is a possibility for a brief overlap of construction period with EGL3 only, although delays in the construction of the CNSE project or EGL2 could be possible. The landfall works, increased vessel presence and implementation of safety zones and advisory safe clearance distances may limit the movements of third-party vessels associated with the installation of construction periods of these assets overlap with that of the Project. In particular, the CNSE project crosses the EICC at three locations and intersects the Array Area.

Embedded mitigation measures, such as the distribution of NtMs will make other users aware of the construction works for the Project. Furthermore, prior to construction, the Applicant will consult with relevant developers to understand the planned activities and to agree procedures to reduce any adverse impact on their assets and the Project. Any crossings of cables will be managed through crossing and proximity agreements, in line with industry best practice for cable crossings.

Taking these embedded mitigation measures into account, any disruption to the CNSE project, EGL2, EGL3 and Tampnet CNSFTC telecommunications cable will be temporary, highly localised and only result in short-term temporary loss of access. Furthermore, the potential for damage is considered to be very low with the implementation of crossing and proximity agreements. Overall, the effect on the CNSE project, EGL2 and EGL3 cables and Tampnet CNSFTC telecommunications cable is of low magnitude.

Evaluation of significance

Taking the high sensitivity of the NSL HVDC cable and the low magnitude of effect, the overall effect is **negligible** and **not significant** in EIA terms.

For the CNSE project, EGL2 and EGL3 cables and Tampnet CNSFTC telecommunications cable, taking the high sensitivity and low magnitude of effect, the overall effect is considered to be **minor** and **not significant** in EIA terms.

Receptor	Sensitivity	Magnitude of effect	Consequence
NSL HVDC	High	Negligible	Negligible
CNSE project	High	Low	Minor
Tampnet CNSFTC telecommunications cable	High	Low	Minor
EGL2 and EGL3 cables	High	Low	Minor

Impact significance – NOT SIGNIFICANT

17.6.1.4 Potential effects on licenced dredge spoil disposal sites

As discussed in Section 17.4.4.4 there are active spoil disposal sites within the vicinity of the EICC landfall at Peterhead (see Figure 17-4). The two active sites, North Buchan Ness (CR080) and Peterhead (CR071), will likely interact with the installation of the Export/Import Cable within the EICC. Access to these dredge spoil disposal sites may be restricted due to the presence of cable installation vessels operating within the inshore area. For further details on vessel transits within the Project Area refer to **EIAR Vol. 3, Chapter 15: Shipping and Navigation**. Any impacts assessed are based on the worst-case scenario provided in Section 17.5.5.

Dredge disposal sites are used infrequently and are therefore able to accommodate short-term temporary obstructions in access. This receptor is considered to be of local importance and therefore is of **low** sensitivity.

To mitigate any temporary interruptions to vessel operations with the disposal sites, the Project will apply the embedded mitigation as discussed in Section 17.5.4. This will involve the dissemination of NtMs informing other sea users of the Project's vessel movements and the Applicant will also undertake separate consultation with the disposal site operators, as required. These embedded mitigation measures will greatly reduce the potential for the Project to disrupt access to the dredge disposal sites. The temporary obstruction is considered highly localised and of a short-term duration, occurring at a very low intensity with minor loss of access at most. Therefore, the effect is assessed as **negligible** due to the temporary nature of construction activities.

Evaluation of significance

Taking the low sensitivity of licenced dredge disposal sites and the low magnitude of the effect, the overall effect of temporary obstruction to the dredge spoil disposal activities during construction is considered to be negligible and not significant in EIA terms.

Sensitivity	Magnitude of effect	Consequence
Low	Negligible	Negligible

Impact significance – NOT SIGNIFICANT

17.6.1.5 Potential effects of UXO clearance (if required)

UXO clearance has the potential to damage infrastructure in the vicinity of the Project. The risk associated with UXO has been assessed through a UXO Threat and Risk assessment (EIAR Vol. 4, Appendix 5: UXO Threat and Risk Assessment). The findings of the assessment state the risk as being 'low' within the Array Area, and 'medium' toward the western end of the EICC. It is anticipated that it will be possible to avoid UXO through micro-siting/micro-routeing. However, where UXO are identified within the Project Area which cannot be avoided or pose a genuine threat to safe completion of construction works, clearance will be undertaken as necessary. As a worst-case it is assumed that up to 50 UXO will be cleared via low order deflagration and one via high order clearance. If UXO clearance works are required, these would be subject to a separate MLA and associated environmental assessment.

As UXO provides a potential health and safety hazard, the sensitivity is considered high. UXO clearance, if unmitigated, also has the potential to result in damage to nearby assets. Any future MLA for UXO clearance will be supported by appropriate environmental assessments, including consideration of effects on MI & OSU receptors. Industry standard safety measures will be implemented to reduce any safety risks or risk of damage to infrastructure, and there will be consultation between the Applicant and any nearby MI & OSU receptors regarding these safety measures to ensure all assets are sufficiently protected. Taking these embedded mitigation measures into account, and the relatively low risk of UXO discovery at inspection in the Project Area, any disruption caused by the UXO inspection and clearance activities during the construction phase will be minimal, highly localised and result in only a minor loss of access (if at all). With the implementation of this embedded mitigation, damage from UXO clearance will be effectively mitigated if found, and the magnitude of effect is therefore considered to be negligible.

Evaluation of significance

Taking the high sensitivity of the UXO and the low magnitude of the effect, the overall effect of UXO clearance during construction is considered to be negligible and not significant in EIA terms.

Sensitivity	Magnitude of effect	Consequence
High	Negligible	Negligible

Impact significance – NOT SIGNIFICANT

17.6.1.6 Potential sterilisation of areas for marine aggregates

The Project Area overlaps with areas identified as potential aggregate resource (evaporite and fill aggregate) (see Section 17.4.4.6). There is currently no demand for marine aggregate extraction in Scottish waters with no active marine aggregate extraction licences at the time of the assessment (see Figure 17-3) (Moffat *et al.*, 2020). The aggregate resource areas mapped by BGS (Figure 17-4) are not currently being used for extraction and represent areas where there is the potential 'presence' of aggregate resources. Confirmation of the nature of the sediments and suitability for extraction would be subject to a detailed survey. Construction (e.g. cable installation) activities could potentially cause sterilisation of areas for marine aggregates (i.e. loss of areas that could otherwise be used for aggregate in the future). Any impacts assessed are based on the worst-case scenario provided in Section 17.5.5.

Green *et al.* (2020) have identified fill aggregate areas as being of regional importance (see Section 17.4.4.6). Marine aggregate extraction is of low economic importance in Scotland, as aggregate extraction is generally conducted terrestrially. It is acknowledged that the demand for marine aggregate could increase in the future, however, the CNS contains wider areas of both evaporite and fill marine aggregate resources. Therefore, the sensitivity of the receptor is low.

Construction activities will overlap with a small extent of the available aggregate resources in Scottish waters (see Figure 17-4). The potential aggregate resource overlapping the Project Area is not confirmed, and any loss of areas for extraction would be highly localised in the context of the wider availability of potential aggregate resource. It is assumed that aggregate extraction would not be permitted to occur over areas of infrastructure, such as the Export/Import Cable, and therefore, this effect would be long-term. However, due to the low demand for aggregate resource in the marine environment, it is considered to be highly unlikely that this effect will occur. Therefore, the magnitude of effect is negligible.

Evaluation of significance

Taking the low sensitivity of marine aggregates and the negligible magnitude of the effect, the overall effect of sterilisation of marine aggregates during construction is considered to be **negligible** and **not significant** in EIA terms.

Sensitivity	Magnitude of effect	Consequence
Low	Negligible	Negligible
Impact significance – NOT SIGNIFICANT		

17.6.2 Potential effects during operation and maintenance

Potential obstruction to the MI & OSU receptors could occur from the presence of infrastructure as well as implementation of safety distances around maintenance vessels during maintenance and/or repair activities. An assessment of potential effects from these activities, using the worst-case scenario presented in Section 17.5.5, is provided below.

17.6.2.1 Potential effects on existing oil and gas operations

During periods of major maintenance, temporary 500 m statutory safety zones may be implemented and there will be increased vessel traffic associated with routine inspection and repair activities. The presence of vessels and safety zones could disrupt access to existing O&G assets. Furthermore, as the Project overlaps with the Licenced Blocks mentioned in Section 17.6.1.1, there is also the potential for disruption to exploration and development activities, resulting from increased vessel and safety zone presence and also the presence of infrastructure limiting the area for future O&G exploration and development.

As detailed in Section 17.6.1.1 O&G activities are assessed to be of **high sensitivity** to disruption and obstruction impacts.

Any obstructions during operation and maintenance activities will be more localised and reduced compared to construction. For example, any repairs will be restricted to specific locations, and any disruption to MI & OSU receptors will be of a comparably shorter duration. Obstruction will occur intermittently and for short periods of time during the operation and maintenance phase. Communication will be maintained with relevant O&G operators e.g. with BP for the Madoes Field and Total Energies for the Culzean 22" Gas Export Flowline.

Disruption to O&G exploration and development activities will depend on the level of planned activities, which is currently unknown. Any disruption caused by the presence of vessels and safety zones will be temporary and short-term, however, any loss of areas for future O&G exploration and development from the presence of infrastructure would be long-term. The Applicant will engage with relevant licensees to ensure the correct steps are taken to minimise any damage or disruption caused.

The Project will be displayed on admiralty charts by the UK Hydrographic Office (UKHO), and appropriate lighting - detailed in International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) G1162 and

Recommendation O-139 (IALA, 2021) – will be applied to the infrastructure to ensure awareness/safety for the MI & OSU receptors. Given the embedded mitigation measures and short-term duration of operation and maintenance activities, disruption to O&G operations and exploration/development activities will be minimal. Any disruption that does occur will be temporary and highly localised, resulting in short-temporary loss of access only. The exception to this is long-term loss of access to areas for O&G exploration and development. However, this impact is uncertain, and the area of loss is considered highly localised. Furthermore, the potential for damage to O&G assets is considered to be very low with the implementation of crossing and proximity agreements and the use of industry best practice crossing design. Due to these factors and the embedded mitigation discussed in Section 17.5.4, the effect is of low magnitude.

Evaluation of significance

Taking the high sensitivity of the O&G industry and the low magnitude of the effect, the overall effect to O&G activities during operation and maintenance phase is considered to be minor and not significant in EIA terms.

Sensitivity	Magnitude of effect	Consequence
High	Low	Minor

Impact significance – NOT SIGNIFICANT

17.6.2.2 Potential effects on other offshore renewable energy developments

As detailed in Section 17.6.1.2, offshore renewable energy activities are assessed to be of high sensitivity to disruption and obstruction impacts. Any obstructions during operation and maintenance activities will be more localised and reduced compared to construction. For example, any repairs will be restricted to specific locations, and any disruption to MI & OSU receptors will be of a comparably shorter duration. Obstruction will occur intermittently and for short periods of time during the operation and maintenance phase. Communication will be maintained with any relevant offshore renewable energy developers e.g. with Salamander. Any risk of damage to third-party assets at crossing locations or in areas where infrastructure is installed in close proximity to existing assets will be low given that Project infrastructure will have been installed in line with industry standard practice and in accordance with crossing and proximity agreements.

The Project will display appropriate aids to navigation with relevant lighting and marking requirements, detailed in IALA (2021) guidance. Any Significant Peripheral Structure (SPS) (structures located at the corners and periphery of an OWF not exceeding 3 NM separation) and Intermediate Peripheral Structure (IPS) (structures located in the periphery of the wind farm, normally not exceeding two NM separation) will be marked with the relevant lighting requirements as per IALA and the MCA. Working lights will be fitted on ladders and access platforms and relevant markings displayed on Project Infrastructure (e.g. turbine submersible painted yellow). Taking the embedded mitigation measures into account, any disruption to offshore renewable energy developments during the operation and maintenance phase will be temporary, highly localised and result in short-term temporary loss of access only. Due to these factors and the embedded mitigation discussed in Section 17.5.4, the effect is of low magnitude.

Evaluation of significance

Taking the high sensitivity of offshore renewable developments and the low magnitude of the effect, the overall effect to offshore renewable energy developments during operation and maintenance phase is considered to be minor and not significant in EIA terms.

Sensitivity	Magnitude of effect	Consequence
High	Low	Minor

Impact significance – NOT SIGNIFICANT

17.6.3 Potential effects during decommissioning

Effects on MI & OSU receptors associated with decommissioning are anticipated to result from the full removal of the Project components. Decommissioning activities will be subject to consultations and further assessments closer to the time of decommissioning to understand technical feasibility, safety and risk, and environmental considerations in detail. These details will be included in a Decommissioning Programme which will be developed post-consent and updated over the life of the Project.

The decommissioning of the Project intends to complete the full removal of offshore infrastructure to below the mudline (where safe/practicable to do so), in line with the OSPAR Convention and forthcoming guidance from OSPAR's North-East Atlantic Environmental Strategy 2030. The majority of decommissioning works are likely to be undertaken in reverse to the sequence of construction works and involve similar or lesser levels of effects to construction.

A Decommissioning Programme will be prepared prior to construction, in line with the requirements of Section 105 of the Energy Act 2004 (as amended) and any applicable guidance available at the time. Currently it is assumed that:

- FTU substructure and WTG components will be removed and towed to port;
- Mooring lines will be removed, and where possible piles will be removed or cut to a suitable distance below the mudline such that the upper portion is removed;
- Cables no longer required will be removed where safe to do so; where they cross live third-party assets, they may be cut and left in situ to prevent damage to third-party operations; and
- The OSCPs will be decommissioned, and the jacket and topside(s) will be towed to shore. The piles will be cut a suitable distance below the mudline.

The sensitivities and effect magnitudes for decommissioning are considered to be comparable to those identified for the construction phase. Therefore, in the absence of detailed information regarding decommissioning works, the effects during the decommissioning of the Project are considered analogous with, or likely less than, those of the construction phase.

17.6.4 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 17-14.

No significant effects on MI & OSU receptors were identified. Therefore, secondary mitigation measures in addition to the embedded mitigation measures listed in Section 17.5.4 are not considered necessary.

Table 17-14 Summary of potential effects

POTENTIAL EFFECT	RECEPTOR	SENSITIVITY OF RECEPTOR	MAGNITUDE OF EFFECT	CONSEQUENCE (SIGNIFICANCE OF EFFECT)	SECONDARY MITIGATION REQUIREMENTS	RESIDUAL CONSEQUENCE (SIGNIFICANT OF EFFECT)
Construction						
Temporary obstruction or interference	O&G activities	High	Low	Minor (not significant)	None required above existing embedded mitigation measures.	Minor (not significant)
Temporary obstruction or interference	Offshore renewable energy developments	High	Low	Minor (not significant)	None required above existing embedded mitigation measures.	Minor (not significant)
Temporary obstruction or interference	Subsea telecommunications and power infrastructure – NSL HVDC cable	High	Negligible	Negligible (not significant)	None required above existing embedded mitigation measures.	Negligible (not significant)
Temporary obstruction or interference	Subsea telecommunications and power infrastructure – CNSE project	High	Low	Minor (not significant)	None required above existing embedded mitigation measures.	Minor (not significant)

POTENTIAL EFFECT	RECEPTOR	SENSITIVITY OF RECEPTOR	MAGNITUDE OF EFFECT	CONSEQUENCE (SIGNIFICANCE OF EFFECT)	SECONDARY MITIGATION REQUIREMENTS	RESIDUAL CONSEQUENCE (SIGNIFICANT OF EFFECT)
Temporary obstruction or interference	Subsea telecommunications and power infrastructure – EGL2 and EGL3 cables	High	Low	Minor (not significant)	None required above existing embedded mitigation measures.	Minor (not significant)
Temporary obstruction or interference	Subsea telecommunications and power infrastructure – Tampnet CNSFTC telecommunications cable	High	Low	Minor (not significant)	None required above existing embedded mitigation measures.	Minor (not significant)
Temporary obstruction or interference	Licenced dredge disposal sites	Low	Negligible	Negligible (not significant)	None required above existing embedded mitigation measures.	Negligible (not significant)
Clearance of UXO	All MI & OSU receptors	High	Negligible	Negligible (not significant)	None required above existing embedded mitigation measures.	Negligible (not significant)
Resource sterilisation	Marine aggregates	Low	Negligible	Negligible (not significant)	None required above existing embedded mitigation measures.	Negligible (not significant)

POTENTIAL EFFECT	RECEPTOR	SENSITIVITY OF RECEPTOR	MAGNITUDE OF EFFECT	CONSEQUENCE (SIGNIFICANCE OF EFFECT)	SECONDARY MITIGATION REQUIREMENTS	RESIDUAL CONSEQUENCE (SIGNIFICANT OF EFFECT)
Operation and maintenance						
Temporary obstruction or interference	O&G activities	High	Low	Minor (not significant)	None required above existing embedded mitigation measures.	Minor (not significant)
Temporary obstruction or interference	Offshore renewable energy developments	High	Low	Minor (not significant)	None required above existing embedded mitigation measures.	Minor (not significant)
Decommissioning						
The sensitivity of receptors and the magnitude of effects to MI & OSU receptors concluded as part of the assessment of potential effects during the construction phase (Section 17.6.1) are also applicable to the decommissioning phase.						

17.7 Assessment of cumulative effects

17.7.1 Introduction

Works associated with the construction, operation and maintenance and decommissioning phases of the Project have the potential to interact with those from other plans, activities and projects (developments) within the marine environment, therefore resulting in cumulative effects on MI & OSU receptors.

The general approach to the cumulative effects assessment is described in EIAR Vol. 2, Chapter 7: EIA Methodology and in EIAR Vol. 4, Appendix 31: Cumulative Effects Assessment Methodology. As part of the cumulative process, a long list of plans, activities and projects (developments) is first defined.

The list of relevant developments for inclusion within the cumulative effects assessment is outlined in Table 17-15. The identification of developments has been informed by a screening exercise which was undertaken to identify relevant developments within a defined ZoI. As outlined for the Project alone assessment, effects on MI & OSU receptors will be highly localised, and therefore the ZoI for screening developments into the cumulative effects assessment is the local Study Area (i.e. 10 NM buffer around the Project Area). The following developments have been excluded from the cumulative effects assessment:

- All existing developments at the time of the assessment – as these are considered to be part of the existing baseline as described in Section 17.4.4;
- All developments that will be operational at the time of construction that do not overlap with the Project Area – due to the lower access requirements required for operational assets, any disruption to other sea users would be over a shorter duration and more localised spatial extent compared with those in the construction phase. Therefore, only developments that will be operational at the time of Project construction that directly overlap with the Project Area are considered for the cumulative effects assessment; and
- All projects with unknown timelines and project activities due to their being insufficient information to conduct a meaningful cumulative effects assessment: Aspen, Beech, Cedar (all part of the North Sea Renewables Grid), CampionWind, Flora Offshore Wind Farm, and Judy.

All potential effects scoped in for the Project alone assessment are considered within the cumulative effects assessment, with the exception of:

- Potential effects of UXO clearance – it is assumed that all other developments will employ similar embedded mitigations to the Project to limit any health and safety risks or damage to third-party assets. Therefore, the potential for a cumulative effect with the Project is extremely low. The separate MLA for UXO clearance will consider cumulative effects in more details using the most up to date information on other plans, developments or activities at the time of the UXO clearance works (if required); and
- Potential sterilisation of areas for marine aggregates – a meaningful cumulative effects assessment cannot be conducted due to the uncertainty in the seabed areas to be used for marine aggregate extraction in the future. As noted in the Project alone assessment, there is currently no demand for marine aggregate extraction in Scottish waters. Moreover, given the widespread distribution of potential aggregate resources (Figure 17-4), the potential for a significant cumulative effect is considered to be low.

Table 17-15 List of developments considered for the MI & OSU cumulative effects assessment

LOCATION	PROJECT TYPE	PROJECT NAME	DISTANCE TO PROJECT (KM)	STATUS	CONFIDENCE[6]
United Kingdom	Cable	Central North Sea Electrification (CNSE) Project	0	Pre-Application (Scoping)	Low
United Kingdom	Offshore Wind	Green Volt Offshore Wind Farm	0	Consented	Medium
United Kingdom	Offshore Wind	MarramWind	0	Pre-Application (Scoping)	Low
United Kingdom	Offshore Wind	Muir Mhòr Offshore Wind Farm	0	Application	Low
United Kingdom	Offshore Wind	Salamander Offshore Wind Farm	0	Application	Low
United Kingdom	Offshore Wind	Eastern Green Link 2 (EGL2)	0	Consented	Medium
United Kingdom	Offshore Wind	Eastern Green Link 3 (EGL3)	0	Pre-Application (Scoping)	Low

[6] *Confidence ratings have been applied to each cumulative development where: 'Low' = pre-application or application, 'Medium' = consented and 'High' = under construction or operational.*

17.7.2 Cumulative construction effects

17.7.2.1 Potential effects on existing oil and gas operations

Other developments in the vicinity of the Project may result in cumulative effects on O&G assets by further disrupting operational, explorational or developmental activities and potentially damaging pipeline infrastructure where crossings occur. All cumulative developments have the potential to cross pipelines present in the inshore area, including those that the Project overlaps. Several of these development's construction periods could overlap with that of the Project, including the MarramWind and Muir Mhòr OWFs and Eastern Green Link 3 (EGL3), which would result in the greatest simultaneous disruption with the Project. As the pipelines in the inshore area are operational, access will only be required on an ad hoc basis, and therefore, any disruption will be minimal, even when the Project is combined with the effects of other projects, plans and activities. Cumulative disruption could also result from operational projects (developments), albeit to a lesser extent, such as the CNSE Project, EGL2, Green Volt OWF and Salamander OWF. The CNSE Project extends further offshore, overlapping with the Array Area, and is located in an area with a prevalence of O&G infrastructure, potentially increasing disruption to the O&G assets also affected by the Project (e.g. Madoes field). However, it is expected that developers will employ similar embedded mitigations as those being employed by the Project, such as the distribution of NtMs, and will share plans and maintenance schedules to ensure all works are undertaken safely and with minimal disruption. Furthermore, it is expected that other developments would also adhere to crossing and proximity agreements to minimise any disruption or damage caused at crossing locations. Considering this, the effect remains as being of low magnitude for potential effects on existing O&G operations, and the overall effect remains as minor and not significant.

17.7.2.2 Potential effects on offshore renewable energy developments

The EICC is located in the vicinity of several offshore renewable energy developments and directly crosses export cable routes or corridors, as described in Section 17.4.4.2. There is the potential for other plans, projects and activities to result in additional temporary disruption to offshore renewable energy developments or damage to infrastructure where crossings occur. In particular, off the coast of Peterhead there are several existing and planned OWFs which could be affected by the planned developments in the area. The greatest potential for obstruction would occur where the construction periods of other developments spatially and temporally overlap with that of the Project, which is true for several projects (developments) that directly overlap the EICC (i.e. MarramWind OWF, and Muir Mhòr OWF and EGL3). The CNSE Project, Salamander OWF, Green Volt OWF and EGL2 also interact with other offshore renewable developments, potentially further exacerbating cumulative disruption, albeit to a lesser extent than if the construction periods of these projects (developments) overlapped with that of the Project.

Cumulative disruption to offshore renewable energy developments may occur due to potential vessel congestion restricting access, which would be further exacerbated by the presence of safety zones for the Project and other developments. Construction activities may also lead to damage to infrastructure at crossing locations. It is expected that other developments will employ similar embedded mitigations as those being employed by the Project to minimise effects on offshore renewable energy developments, such as the distribution of NtMs, and will share plans and construction schedules to ensure all works are undertaken safely and with minimal disruption. Furthermore, it is expected that other developments would also adhere to minimise any disruption or damage caused at crossing locations. Considering this, the effect remains as being of low magnitude for effects on offshore renewable energy developments, and the overall effect remains as minor and not significant.

17.7.2.3 Potential effects on subsea telecommunications cables and subsea infrastructure

As described in Section 17.7.2.3, the Project Area spatially overlaps with telecommunications and power infrastructure in the CNS, overlapping directly with the CNSE project, EGL2, EGL3 and the TAMPNET CNSFTC telecommunications cable (see Figure 17-4).

Other plans, projects and activities have the potential to result in cumulative disruption or damage to telecommunications and power infrastructure. Off the coast of Peterhead, there are several planned developments which could cumulatively disrupt access to subsea cables or result in additional damage at crossing locations in this location. As noted above for O&G and offshore renewable energy developments, the greatest potential for cumulative disruption with the Project would occur for those projects (developments) with construction periods that overlap with the Project, including MarramWind, Muir Mhòr and EGL3. The CNSE Project, Green Volt OWF, Salamander OWF and EGL2 will also overlap with power and telecommunication cables, potentially further exacerbating cumulative disruption, albeit to a lesser extent than if the construction periods of these projects (developments) overlapped with that of the Project.

Any risk of damage to third-party assets at crossing locations or in areas where infrastructure is installed in close proximity to existing assets will be low given that Project infrastructure and other development infrastructure will have been installed in line with industry standard practice and in accordance with crossing and proximity agreements. Therefore, the effect of temporary obstruction to subsea cables during construction remains as being of **low magnitude** for the CNSE Project, EGL2, EGL3 and TAMPNET CNSFTC and the overall effect remains as **minor** and **not significant**. For the NSL HVDC Link, the effect remains as being of a **negligible** magnitude, and the overall effect remains as **negligible** and **not significant.**

17.7.2.4 Potential effects on licenced dredge disposal sites

As discussed in Section 17.6.1.4, there are active spoil disposal sites within the vicinity of the several planned developments off the coast of Peterhead (see Figure 17-4). The two active sites in the vicinity of the EICC, North Buchan Ness (CR080) and Peterhead (CR071), are in the vicinity of Salamander OWF, Green Volt OWF, MarramWind, Muir Mhòr OWF, CNSE Project, EGL2 and EGL3. Access to these dredge spoil disposal sites may be restricted due to the presence of vessels associated with the Project and other developments within the inshore area. To mitigate any temporary interruptions to vessel operations with the disposal sites, it is expected that all developments will apply similar embedded mitigation to those discussed in Section 17.5.4. This will involve the dissemination of NtMs informing MI & OSU receptors of vessel movements. The Applicant and other developers will also undertake separate consultation to coordinate activities with dredge disposal activities, as required.

The embedded mitigation measures will greatly reduce the potential for the developments to cumulatively disrupt access to the dredge disposal sites. The effect remains as being of a **negligible** magnitude, and the overall effect remains as **negligible** and **not significant**.

17.7.3 Cumulative operation and maintenance effects

17.7.3.1 Potential effects on oil and gas infrastructure

All of the cumulative developments identified within Table 17-15 will be operational by the time of the Project's operation and maintenance phase. As for the Project, it is anticipated that any disruption from other developments during operation and maintenance phase will be more localised and reduced compared to construction. For example, any repairs will be restricted to specific locations, and any disruption to O&G will be of a short duration. Therefore, the potential for a cumulative effect will be less than what has been described for construction. Any risk of damage to assets at crossing locations or in areas where infrastructure is installed in close proximity to existing assets will be low given that infrastructure will have been installed in line with industry standard practice and in accordance with crossing and proximity agreements. Therefore, the effect remains as being of low magnitude, and the overall effect remains as minor and not significant.

17.7.3.2 Potential effects on other offshore renewable energy developments

As outlined above for O&G infrastructure, all of the cumulative developments screened into the cumulative effects assessment will be operational at the time of the Project's operation and maintenance phase, and therefore, any disruption will be less than what has been described for construction. Any risk of damage to assets at crossing locations or in areas where infrastructure is installed in close proximity to existing assets will be low given that infrastructure will have been installed in line with industry standard practice and in accordance with crossing and proximity agreements. Therefore, the effect remains as being of low magnitude and the overall effect remains as minor and not significant.

17.7.4 Cumulative decommissioning effects

The decommissioning of the Project intends to complete the full removal of offshore infrastructure to below the mudline (where safe/practicable to do so). The majority of decommissioning works are likely to be undertaken in reverse to the sequence of construction works. However, there is limited information on the details around decommissioning of the Project and around the lifecycle of other developments. Considering this, it is assumed that decommissioning involves similar or lesser levels of effects to construction.

A Decommissioning Programme will be prepared prior to construction, in line with the requirements of Section 105 of the Energy Act 2004 (as amended) and any applicable guidance available at the time.

17.7.5 Summary of cumulative effects

A summary of the outcomes of the assessment of cumulative effects for the construction, operation and maintenance and decommissioning phases of the Project is provided in Table 17-16.

Table 17-16 Summary of assessment of cumulative effects

POTENTIAL IMPACT	RECEPTOR	SENSITIVITY OF RECEPTOR	MAGNITUDE OF EFFECT	CONSEQUENCE (SIGNIFICANCE OF EFFECT)	SECONDARY MITIGATION REQUIREMENTS	RESIDUAL CONSEQUENCE (SIGNIFICANT OF EFFECT)
Construction						
Temporary obstruction or interference	O&G activities					
Temporary obstruction or interference	Offshore renewable energy developments	High	Minor	Minor (not significant)	None required above existing embedded mitigation measures.	Minor (not significant) or n/a if no residual assessment required
Temporary obstruction or interference	Subsea cables – CNSE Project EGL2, EGL3 and TAMPNET CNSFTC	High	Minor	Minor (not significant)	None required above existing embedded mitigation measures.	Minor (not significant) or n/a if no residual assessment required
	Subsea cables – NSL HVDC cable	High	Negligible	Negligible (not significant)	None required above existing embedded mitigation measures.	Negligible (not significant)

POTENTIAL IMPACT	RECEPTOR	SENSITIVITY OF RECEPTOR	MAGNITUDE OF EFFECT	CONSEQUENCE (SIGNIFICANCE OF EFFECT)	SECONDARY MITIGATION REQUIREMENTS	RESIDUAL CONSEQUENCE (SIGNIFICANT OF EFFECT)
Temporary obstruction or interference	Licenced dredge disposal sites	Low	Negligible	Negligible (not significant)	None required above existing embedded mitigation measures.	Negligible (not significant)
Operation and maintenance						
Temporary obstruction or interference	O&G activities	High	Minor	Minor (not significant)	None required above existing embedded mitigation measures.	Minor (not significant)
Temporary obstruction or interference	Offshore renewable energy developments	High	Minor	Minor (not significant)	None required above existing embedded mitigation measures.	Minor (not significant)

17.8 Inter-related effects

Inter-related effects are the potential effects of multiple effects, affecting one receptor or a group of receptors. Inter-related effects include interactions between the effects of the different phases of the Project (i.e. interaction of effects across construction, operation and maintenance and decommissioning), as well as the interaction between effects on a receptor within a Project phase. The potential inter-related effects for MI & OSU receptors are described below.

17.8.1 Inter-related effects between Project phases

The majority of any potential obstruction to MI & OSU receptors would occur during the construction phase, when the number of vessels and safety zones present in the Project Area would be highest. There is no potential for the effects during other phases of the Project to interact in a way that would result in combined effects of greater significance than the assessments for each individual phase.

17.8.2 Inter-related effects within a Project phase

There are no anticipated inter-related effects within a Project phase on MI & OSU receptors, as each impact assessed in this chapter is for a separate, non-related receptor. UXO is an exception to this within the impact assessment, as UXO clearance could affect the receptors assessed within other impact sections. However, due to the necessary mitigation in place, no inter-related effects are predicted that would result in an effect of greater significance than already assessed for each individual impact section.

17.8.3 Inter-relationships

Inter-relationships are defined as the interaction between the effects assessed within different topic assessment chapters on a receptor. The other chapters and effects related to the assessment of potential effects on MI & OSU are provided in Table 17-17.

Table 17-17 MI & OSU inter-relationships

CHAPTER	POTENTIAL EFFECT	DESCRIPTION
Chapter 15: Shipping and Navigation	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.	There is the potential for vessels transiting to and from nearby assets/activities to be impacted by vessels or infrastructure associated with the Project. These impacts are discussed within EIAR Vol. 3, Chapter 15: Shipping and Navigation.
Chapter 18: Military and Civil Aviation	The installation and presence of FTUs pose physical obstructions to O&G helicopter operations carried out in the vicinity of windfarms.	There is the potential for O&G platforms nearby to the Project to be affected by disruption to helicopter operations caused by the presence of FTUs. FTUs may also present a potential obstacle for helicopters, resulting in a collision risk. These impacts are assessed in EIAR Vol. 3, Chapter 18: Military and Civil Aviation.

17.9 Whole Project assessment

Please refer to EIAR Vol. 2, Chapter 7: EIA methodology for the full description of the Whole Project assessment.

The onshore aspects of the Project (i.e. those landwards of Mean Low Water Springs (MLWS)), including the onshore HDD entry point and the Export/Import Cable pull through, have been consented through the NorthConnect HVDC Cable Planning Consent. Details of the onshore project infrastructure which has been acquired through NorthConnect is presented within EIAR Vol. 2, Chapter 5: Project Description.

The works for the onshore aspects of the Project could disturb the onshore activities associated with the MI & OSU receptors described within this chapter. However, the majority of MI & OSU receptors landfall further north than the Project, and therefore, the potential for disruption onshore is considered to be low. Furthermore, it is expected that any disturbance from the onshore aspects of the Project will be mitigated in a similar manner to any disruption from the Project (e.g. through consultation with relevant parties ahead of any onshore works and seeking agreements on procedures to reduce the potential for any disruption). Therefore, there is no potential for the onshore aspects of the Project to significantly exacerbate any of the effects assessed within this chapter.

17.10 Transboundary effects

Transboundary effects arise when impacts from a development within one European Economic Area (EEA) state's territory affects the environment of another EEA state(s).

There is no potential for transboundary impacts upon the MI & OSU receptors due to construction, operation and maintenance and decommissioning of the Project. The potential effects are localised and are not expected to affect other EEA states. The TAMPNET CNSFTC telecommunications cable crossings the Exclusive Economic Zone (EEZ). All overlap and subsequent cable crossings will occur on the UK and non-UK side of the EEZ, but these will be appropriately protected and mitigated. Therefore, transboundary effects for MI & OSU receptors do not need to be considered further.

17.11 Summary of mitigation and monitoring

No secondary mitigation, over and above the embedded mitigation measures proposed in Section 17.5.4, is either required or proposed in relation to the potential effects of the Project on MI & OSU receptors as no adverse significant impacts are predicted.

No monitoring (over and above ongoing consultation) is currently proposed for MI & OSU receptors.

17.12 References

Atkins (2014). Kincardine Offshore Windfarm Environmental Scoping Assessment. Available online at: https://marine.gov.scot/sites/default/files/00448819.pdf [Accessed on 09/07/2024]

BEIS (Department for Business, Energy, and Industrial Strategy) (2016). UK Offshore Energy Strategic Environmental Assessment 3 (OESEA3). Appendix 1H: Other Users. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/504567/OESEA3_A1h_Other_users.pdf [Accessed on 09/07/2024]

BEIS (2022). UK Offshore Energy SEA 4 – Appendix 1h – Other Users and Material Assets. Available online at: https://www.gov.uk/government/consultations/uk-offshore-energy-strategic-environmental-assessment-4-oesea4. [Accessed on 25/07/2024]

Byrne Ó Cléirigh Ltd., Ecological Consultancy Services Ltd (EcoServe) and School of Ocean and Earth Sciences, University of Southampton (2000). Assessment of Impact of Offshore Wind Energy Structures on the Marine Environment. Marine Institute. Available at: http://hdl.handle.net/10793/579 [Accessed on 07/08/2024]

Cerulean Winds (2024). North Sea Renewables Grid. Available online at: https://ceruleanwinds.com/north-sea-renewables-grid-nsrg/ [Accessed on 22/07/2024].

CES (2022). ScotWind offshore wind leasing delivers major boost to Scotland's Net Zero aspirations. Available online at: https://www.crownestatescotland.com/news/scotwind-offshore-wind-leasing-delivers-major-boost-to-scotlands-net-zero-aspirations [Accessed on 09/09/2024]

CES (2024). CES Maps. Available online at: https://www.offshorewindscotland.org.uk/the-offshore-wind-market-in-scotland/scotwind-leasing-round/ [Accessed on 25/07/2024].

CNSE Project (2023). Central North Sea Electrification (CNSE) Project Offshore EIA Scoping Report. Available online at: https://marine.gov.scot/node/24031 [Accessed on 12/11/2024].

EMODNet (2024) Cables and pipelines and Explosive disposal sites. Available online at: https://emodnet.ec.europa.eu/geoviewer/#!/. [Accessed on 08/07/2024]

ESCA (European Subsea Cables Association) (2016). Guideline No.6 – The Proximity of Offshore Renewable Energy Installations and Submarine Cable Infrastructure in UK Waters

FLOWW (2014). Best Practice Guidance for Offshore Renewable Developments: Recommendations for Fisheries Liaison. Fisheries Liaison with Offshore Wind and Wet Renewables Group (FLOWW). Available online at: https://www.thecrownestate.co.uk/media/501902/floww-best-practice-guidance-disruption-settlements-andcommunity-funds.pdf [Accessed on 31/07/2024]

FLOWW (2015). FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds Fisheries Liaison with Offshore Wind and Wet Renewables

Group (FLOWW). Available online at: http://www.thecrownestate.co.uk/media/501902/floww-best-practice-guidancedisruption-settlements-and-community-funds.pdf [Accessed on 31/07/2024]

Green, S., Campbell, E., Bide, T. P., Balson, P. S., Mankelow, J. M., Shaw, R. A. And Walters, A. S. (2013). The Mineral Resources of Scottish waters and the Irish Sea. British Geological Survey Open Report, OR/13/013. 25pp.

IALA Guideline (2021). G1162 The Marking of Offshore Man-Made Structures. Available online at: https://www.iala-aism.org/product/g1162/ [Accessed on 14/11/2022].

ICPC (International Cable Protection Committee) (2023). Recommendations. Available online at: https://www.iscpc.org/publications/recommendations/ [Accessed on 08/07/2024]

Inch Cape (2022). Inch Cape Offshore Wind Farm Section 36 Variation Application Report. Available online at: https://www.inchcapewind.com/wp-content/uploads/2022/11/Inch-Cape-Offshore-Wind-Farm-Variation-Report-Final-221122.pdf [Accessed on 25/07/2024]

Marine Directorate (2024). National Marine Plan Interactive (NMPi). Available online at: https://marinescotland.atkinsgeospatial.com/nmpi/ [Accessed on 09/07/2024].

MCA (2021). Statutory guidance - MGN 654 (M+F) Offshore Renewable Energy Installations (OREI) safety response. Available at: https://www.gov.uk/government/publications/mgn-654-mf-offshore-renewable-energy-installations-orei-safety-response [Accessed on 10/12/2024].

Moffat, C., Baxter, J., Berx, B., Bosley, K., Boulcott, P.,Cox, M., Cruickshank, L., Gillham, K., Haynes, V., Roberts, A., Vaughan, D., and Webster, L. (2020). Scotland's Marine Assessment 2020. Scottish Government

NSTA (2023). NSTA spatial data. Available online at: https://www.nstauthority.co.uk/data-centre/interactive-maps-and-tools/ [Accessed on 25/07/2024].

Offshore Technology (2024). Eastern Trough Area Project (ETAP), North Sea Central, UK. Available online at: https://www.offshore-technology.com/projects/etaps/ [Accessed on 10/07/2024]

Oil and Gas UK (2015). Pipeline Crossing Agreement and Pipeline Proximity Agreement. Available online at: https://oeuk.org.uk/product/pipeline-crossing-agreement-proximity-agreement-pack/ [Accessed on 08/07/2024]

OREC (2024). Floating Offshore Wind Co-location & Co-existence Risk & Opportunities. Available online at: https://fowcoe.co.uk/industry-insights/reports/floating-offshore-wind-co-location-amp-co-existence-risk-amp-opportunities/?utm_content=308074010&utm_medium=social&utm_source=linkedin&hss_channel=lcp-3318975 [Accessed on 08/10/2024]

Renewable UK (2014). Offshore Wind and Marine Energy Health and Safety Guidelines. Issue 2. Available online at: https://cdn.ymaws.com/www.renewableuk.com/resource/collection/AE19ECA8-5B2B-4AB5-96C7-ECF3F0462F75/Offshore_Marine_HealthSafety_Guidelines.pdf [Accessed on 07/08/2024]

Scottish Government (2015). Scotland's National Marine Plan: A Single Framework for Managing Our Seas. Available online at: Scotland's National Marine Plan: A Single Framework for Managing Our Seas (www.gov.scot) [Accessed on 08/07/2024].

Scottish Government (2020). Sectoral Marine Plan: regional locational guidance. Available online at: https://www.gov.scot/publications/sectoral-marine-plan-regional-locational-guidance/ [Accessed on 08/07/2024]

Scottish Government (2022). Sectoral Marine Plan for Offshore Wind for Innovation and Targeted Oil and Gas Decarbonisation (INTOG). Initial Plan Framework. Available online at: https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2022/02/initial-plan-framework-sectoral-marine-plan-offshore-wind-innovation-targeted-oil-gas-decarbonisation-intog/documents/initial-plan-framework-sectoral-marine-plan-offshore-wind-innovation-targeted-oil-gas-decarbonisation-intog/initial-plan-framework-sectoral-marine-plan-offshore-wind-innovation-targeted-oil-gas-decarbonisation-intog/govscot%3Adocument/initial-plan-framework-sectoral-marine-plan-offshore-wind-innovation-targeted-oil-gas-decarbonisation-intog.pdf [Accessed on 09/07/2024]

Seagreen (2017). Seagreen Phase 1 Offshore Project Scoping Report Round 3: Firth of Forth. Available online at: https://marine.gov.scot/sites/default/files/seagreen_phase_1_scoping_2017.pdf [Accessed on 08/07/2024]

Seagreen 1A (2024). Proposals to connect into Scotland's largest offshore wind farm. Available online at: https://www.seagreen1a.com/ [Accessed on 08/07/2024]

Statoil (2015). Hywind Scotland Pilot Park Environmental Statement. Available online at: https://marine.gov.scot/datafiles/lot/hywind/Environmental_Statement/Environmental_Statement.pdf [Accessed on 08/07/2024]

The Crown Estate (2012). Submarine cables and offshore renewable energy installations. Available online at: https://www.thecrownestate.co.uk/media/1784/submarine-cables-and-offshore-renewable-energy-installations-proximity-study.pdf [Accessed on 07/08/2024]

Total Energies (2024). Culzean Wind Turbine. Available online at: https://totalenergies.co.uk/culzeanwindturbine [Accessed on 08/07/2024]

Vattenfall (2011). European Offshore Wind Deployment Centre Environmental Statement Chapter 1: Introduction. Available online at: https://marine.gov.scot/sites/default/files/chapter_1_introduction_2.pdf [Accessed on 09/07/2024]

4C Offshore (2024). Maps. Available online at: https://map.4coffshore.com/offshorewind/ [Accessed on 10/07/2024]