



DOGGER BANK D WIND FARM

Preliminary Environmental Information Report

Volume 1
Chapter 18 Other Marine Users

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Glossary

Term	Definition
Additional Mitigation	<p>Measures identified through the EIA process that are required as further action to avoid, prevent, reduce or, if possible, offset likely significant adverse effects to acceptable levels (also known as secondary (foreseeable) mitigation).</p> <p>All additional mitigation measures adopted by the Project are provided in the Commitments Register.</p>
Commitment	<p>Refers to any embedded mitigation and additional mitigation, enhancement or monitoring measures identified through the EIA process and those identified outside the EIA process such as through stakeholder engagement and design evolution.</p> <p>All commitments adopted by the Project are provided in the Commitments Register.</p>
Design	<p>All of the decisions that shape a development throughout its design and pre-construction, construction / commissioning, operation and, where relevant, decommissioning phases.</p>
Array Area	<p>The area within which the wind turbines, inter-array cables and offshore platform(s) will be located.</p>
Deemed Marine Licence (dML)	<p>A consent required under the Marine and Coastal Access Act 2009 for certain activities undertaken within the UK marine area, which may be granted as part of the Development Consent Order.</p>
Development Consent Order (DCO)	<p>A consent required under Section 37 of the Planning Act 2008 to authorise the development of a Nationally Significant Infrastructure Project, which is granted by the relevant Secretary of State following an application to the Planning Inspectorate.</p>
Effect	<p>An effect is the consequence of an impact when considered in combination with the receptor’s sensitivity / value / importance, defined in terms of significance.</p>
Embedded Mitigation	<p>Embedded mitigation includes:</p> <ul style="list-style-type: none">Measures that form an inherent part of the project design evolution such as modifications to the location or design of the development made during the pre-application phase (also known as primary (inherent) mitigation); andMeasures that will occur regardless of the EIA process as they are imposed by other existing legislative requirements or are considered as standard or best practice to manage commonly occurring environmental impacts (also known as tertiary (inexorable) mitigation). <p>All embedded mitigation measures adopted by the Project are provided in the Commitments Register.</p>

Term	Definition
Enhancement	<p>Measures committed to by the Project to create or enhance positive benefits to the environment or communities, as a result of the Project.</p> <p>All enhancement measures adopted by the Project are provided in the Commitments Register.</p>
Environmental Impact Assessment (EIA)	<p>A process by which certain planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information and includes the publication of an Environmental Statement.</p>
Environmental Statement (ES)	<p>A document reporting the findings of the EIA which describes the measures proposed to mitigate any likely significant effects.</p>
Evidence Plan Process (EPP)	<p>A voluntary consultation process with technical stakeholders which includes a Steering Group and Expert Topic Group (ETG) meetings to encourage upfront agreement on the nature, volume and range of supporting evidence required to inform the EIA and HRA process.</p>
Expert Topic Group (ETG)	<p>A forum for targeted technical engagement with relevant stakeholders through the EPP.</p>
Impact	<p>A change resulting from an activity associated with the Project, defined in terms of magnitude.</p>
Inter-Array Cables	<p>Cables which link the wind turbines to the offshore platform(s).</p>
Landfall	<p>The area on the coastline, south-east of Skipsea, at which the offshore export cables are brought ashore, connecting to the onshore export cables at the transition joint bay above Mean High Water Springs.</p>
Mitigation	<p>Any action or process designed to avoid, prevent, reduce or, if possible, offset potentially significant adverse effects of a development.</p> <p>All mitigation measures adopted by the Project are provided in the Commitments Register.</p>

Term	Definition
Monitoring	<p>Measures to ensure the systematic and ongoing collection, analysis and evaluation of data related to the implementation and performance of a development. Monitoring can be undertaken to monitor conditions in the future to verify any environmental effects identified by the EIA, the effectiveness of mitigation or enhancement measures or ensure remedial action are taken should adverse effects above a set threshold occur.</p> <p>All monitoring measures adopted by the Project are provided in the Commitments Register.</p>
Offshore Development Area	<p>The area in which all offshore infrastructure associated with the Project will be located, including any temporary works area during construction, which extends seaward of Mean High Water Springs. There is an overlap with the Onshore Development Area in the intertidal zone.</p>
Offshore Export Cable Corridor (ECC)	<p>The area within which the offshore export cables will be located, extending from the DBD Array Area to Mean High Water Springs at the landfall.</p>
Offshore Export Cables	<p>Cables which bring electricity from the offshore platform(s) to the transition joint bay at landfall.</p>
Offshore Platform(s)	<p>Fixed structures located within the DBD Array Area that contain electrical equipment to aggregate and, where required, convert the power from the wind turbines, into a more suitable voltage for transmission through the export cables to the Onshore Converter Station. Such structures could include (but are not limited to): Offshore Converter Station(s) and an Offshore Switching Station.</p>
Safety Zones	<p>A statutory, temporary marine zone demarcated for safety purposes around a possibly hazardous offshore installation or works / construction area.</p>
Scoping Opinion	<p>A written opinion issued by the Planning Inspectorate on behalf of the Secretary of State regarding the scope and level of detail of the information to be provided in the Applicant’s Environmental Statement.</p> <p>The Scoping Opinion for the Project was adopted by the Secretary of State on 02 August 2024.</p>
Scoping Report	<p>A request by the Applicant made to the Planning Inspectorate for a Scoping Opinion on behalf of the Secretary of State.</p> <p>The Scoping Report for the Project was submitted to the Secretary of State on 24 June 2024.</p>
Scour Protection	<p>Protective materials used to avoid sediment erosion from the base of the wind turbine foundations and offshore platform foundations due to water flow.</p>
Study Areas	<p>A geographical area and / or temporal limit defined for each EIA topic to identify sensitive receptors and assess the relevant likely significant effects.</p>
The Applicant	<p>SSE Renewables and Equinor acting through 'Doggerbank Offshore wind Farm Project 4 Projco Limited'.</p>

Term	Definition
The Project	<p>Dogger Bank D Offshore Wind Farm Project, also referred to as DBD in this PEIR.</p>
Transition Joint Bays (TJB)	<p>An underground structure at the landfall that houses the joints between the offshore and onshore export cables.</p>
Trenchless Techniques	<p>Trenchless cable or duct installation methods used to bring offshore export cables ashore at landfall, facilitate crossing major onshore obstacles such as roads, railways and watercourses and where trenching may not be suitable.</p> <p>Trenchless techniques included in the Project Design Envelope include Horizontal Directional Drilling (HDD), auger boring, micro-tunnelling, pipe jacking / ramming and Direct Pipe.</p>
Wind Turbines	<p>Power generating devices located within the DBD Array Area that convert kinetic energy from wind into electricity.</p>

18 Other Marine Users

18.1 Introduction

1. This chapter of the Preliminary Environmental Information Report (PEIR) presents the preliminary results of the Environmental Impact Assessment (EIA) of the Dogger Bank D Offshore Wind Farm Project (hereafter ‘the Project’ or ‘DBD’) on other marine users.
2. **Chapter 4 Project Description** provides a description of infrastructure components and the construction, operation and maintenance, and decommissioning activities for DBD, presented in **Section 4.5**.
3. The primary purpose of the PEIR is to support the statutory consultation activities required for a Development Consent Order (DCO) application under the Planning Act 2008. The information presented in this PEIR chapter is based on the baseline characterisation and assessment work undertaken to date. The feedback from the statutory consultation will be used to inform the final project design where appropriate and presented in an Environmental Statement (ES), which will be submitted with the DCO application.
4. This PEIR chapter:
 - Describes the baseline environment relating to other marine users;
 - Presents an assessment of the likely significant effects on other marine users during the construction, operation and decommissioning phases of the Project;
 - Identifies any assumptions and limitations encountered in compiling the environmental information; and
 - Sets out proposed mitigation measures to avoid, prevent reduce or offset potential adverse environmental effects identified during the EIA process and, where relevant, monitoring measures or enhancement measures to create or enhance positive effects.
5. This chapter should be read in conjunction with the following related chapters. Inter-relationships are discussed further in **Section 18.10.1**.
 - **Chapter 15 Shipping and Navigation;** and
 - **Chapter 16 Aviation, Radar and Military.**
6. Additional information to support the other marine users assessment includes:
 - **Volume 2, Appendix 18.1 Consultation Responses for Other Marine Users.**

18.2 Policy and Legislation

18.2.1 National Policy Statements

7. Planning policy on energy Nationally Significant Infrastructure Projects (NSIP) is set out in the National Policy Statements (NPS). The following NPS are relevant to the other marine users assessment:
 - Overarching National Policy Statement for energy (EN-1) (DESNZ, 2023a); and
 - NPS for Renewable Energy Infrastructure (EN-3) (DESNZ, 2023b).
8. This chapter has been prepared with reference to specific requirements in the above NPS. The relevant parts of the NPS are summarised in **Table 18-1**, along with how and where they have been considered in this PEIR chapter.
9. Where relevant to the EIA, coordination measures have been detailed and considered in this chapter.

Table 18-1 Summary of Relevant National Policy Statement Requirements for Other Marine Users

NPS Reference and Requirement	How and Where Considered in the PEIR
Overarching NPS for Energy (EN-1)	
<p>Paragraph 4.5.6:</p> <p>“A deemed marine licence can be granted as part of the Development Consent Order and is developed in consultation with regulators and statutory advisors. A Marine Licence is primarily concerned with the need to protect the environment and human health and to prevent interference with other legitimate uses of the sea.”</p>	The potential impacts for other uses of the sea are assessed in Section 18.7 .
NPS for Renewable Energy Infrastructure (EN-3)	
<p>Paragraph 2.8.44:</p> <p>“There may be constraints imposed on the siting or design of offshore wind farms because of restrictions resulting from the presence of other offshore infrastructure such as oil and gas, Carbon Capture, Usage and Storage (CCUS), co-location of electrolyzers for hydrogen production, marine aggregate dredging, telecommunications, or activities such as aviation and recreation.”</p>	Chapter 5 Site Selection and Assessment of Alternatives provides the rationale for the location of the DBD Array Area and offshore export cable corridor (ECC), which includes consideration of constraints associated with other offshore infrastructure.
<p>Paragraph 2.8.197 to 2.8.198:</p> <p>“Where a potential offshore wind farm is proposed close to existing operational offshore infrastructure, or has the potential to affect activities for which a licence has been issued by Government, the applicant should undertake an assessment of the potential effect of the proposed development on such existing or permitted infrastructure or activities. The assessment should be undertaken for all stages of the lifespan of the proposed wind farm in accordance with the appropriate policy for offshore wind farm EIAs.”</p>	The potential impacts are assessed in Section 18.7 .
<p>Paragraph 2.8.200:</p> <p>“Applicants should engage with interested parties in the potentially affected offshore sectors early in the development phase of the proposed offshore wind farm, with an aim to resolve as many issues as possible prior to the submission of an application”</p>	Consultation with owners and operators of offshore infrastructure has and will continue to be undertaken by the Applicant, see Section 18.3 for further information.
<p>Paragraphs 2.8.201 to 2.8.203:</p> <p>“Such stakeholder engagement should continue throughout the life of the proposed development including construction, operation and decommissioning phases where necessary. As many of these offshore industries are regulated by Government, the relevant Secretary of State should also be a consultee where necessary. Such engagement should be taken to ensure that solutions are sought that allow offshore wind farms and other users of the sea to successfully co-exist”.</p>	Consultation with the Planning Inspectorate has been undertaken as part of the scoping phase. The Scoping Opinion from the Planning Inspectorate in relation to other marine users is shown in Volume 2, Appendix 18.1 Consultation Responses for Other Marine Users .

18.2.2 Other Policy and Legislation

10. Other policy and legislation relevant to the other marine users assessment is summarised in the following sections. In addition to the NPS, there are several pieces of legislation, policy and guidance applicable to the assessment of infrastructure and other users. These include:
 - East Inshore and East Offshore Marine Plan (MMO, 2014);
 - North East Inshore and North East Offshore Marine Plan (MMO, 2021);
 - Clean Power 2030 Action Plan (DESNZ, 2024);
 - European Subsea Cable UK Association (ESCA) Guideline No. 6 – The Proximity of Offshore Renewable Energy Installations and Submarine Cable Infrastructure in UK Waters (ESCA, 2016);
 - The International Cable Protection Committee (ICPC) has issued a series of recommendations for marine cables, specifically:
 - Recommendations No. 2 – Recommended Routing and Reporting Criteria for Cables in Proximity to Others (ICPC, 2015);
 - Recommendations No. 3 – Criteria to be Applied to Proposed Crossings Submarine Cables and / or Pipelines (ICPC, 2014); and
 - Recommendations No. 13 – The Proximity of Offshore Renewable Wind Energy Installations and Submarine Cable Infrastructure in National Waters (ICPC, 2013).
 - Oil and gas licencing rounds information (Oil and Gas Authority, 2023); and
 - Principles of cable routeing and spacing (Red Penguin Associates Ltd, 2012).
11. The guidance regarding submarine cables and offshore renewable developments and their proximity is of relevance to this chapter, given the potential for the DBD Array Area and offshore ECC to be located in close proximity, or be directly crossing, other third-party infrastructure (see **Section 18.5.5** for further information). Further detail on general policy and guidance is provided in **Chapter 3 Policy and Legislative Context**.

18.3 Consultation

12. Topic-specific consultation in relation to other marine users has been undertaken in line with the process set out in **Chapter 7 Consultation**. A Scoping Opinion from the Planning Inspectorate was received on 2nd August 2024, which has informed the scope of the assessment presented within this chapter (as outlined in **Section 18.4.2**).
13. **Volume 2, Appendix 18.1 Consultation Responses for Other Marine Users** summarises how consultation responses received to date are addressed in this chapter.

14. This chapter will be updated based on refinements made to the Project Design Envelope and to consider where appropriate stakeholder feedback on the PEIR. The updated chapter will form part of the ES to be submitted with the DCO application.

18.4 Basis of the Assessment

15. The following sections establish the basis of the assessment of likely significant effects, which is defined by the Study Area(s), assessment scope, and realistic worst-case scenarios. This section should be read in conjunction with **Volume 2, Appendix 1.2 Guide to PEIR, Volume 2, Appendix 6.2 Impacts Register** and **Volume 2, Appendix 6.3 Commitments Register**.

18.4.1 Study Area

16. The other marine users Study Area has been defined on the basis of marine activities within 50km of the DBD Array Area and within the offshore ECC that have the potential to overlap, be influenced by, or influence the Project (see **Figure 18-1**). This distance is derived from expert knowledge of past offshore wind farm projects and their impacts. Note that any receptor-specific variations to this Study Area are justified in the relevant sections.
17. The assessment considers existing as well as planned projects and activities, where information is within the planning system, otherwise publicly available, or has been made available through the consultation process.

18.4.2 Scope of the Assessment

18. Several impacts have been scoped out of the other marine users assessment. These impacts are outlined in the Impacts and Effects Register provided in **Volume 2, Appendix 6.1 Impacts and Effects Register**, along with supporting justification and are in line with the Scoping Opinion (discussed in **Section 18.3**) and the project description outlined in **Chapter 4 Project Description**. A description of how the Impacts and Effects Register should be used alongside the PEIR chapter is provided in **Chapter 6 Environmental Impact Assessment Methodology**.
19. Impacts scoped into the assessment relating to other marine users are outlined in **Table 18-2** and discussed further in **Section 18.7**.

Table 18-2 Other Marine Users – Impacts Scoped into the Assessment

Impact ID	Impact and Project Activity	Rationale
Construction		
OMU-C-01	Potential interference with other wind farms - from general development of the Project.	There is potential for an impact pathway of the Project's infrastructure and activities to interfere with other wind farms (see Section 18.7.1.1).
OMU-C-02	Potential interference with oil and gas activities - from general development of the Project.	There is potential for an impact pathway of the Project's infrastructure and activities to interfere with oil and gas activities (see Section 18.7.1.2).
OMU-C-03	Physical impacts on subsea cables and pipelines - from general development of the Project.	There is potential for an impact pathway of the Project's infrastructure to impact subsea cables and pipelines (see Section 18.7.1.3).
OMU-C-04	Impacts on Carbon Capture and Storage (CCS) sites - from general development of the Project.	There is potential for an impact pathway of the Project's infrastructure and activities to interfere and impact with CCS sites and activities (see Section 18.7.1.4).
Operation and Maintenance		
OMU-O-01	Potential interference with other wind farms - from general development of the Project.	There is potential for an impact pathway of the Project's infrastructure and activities to interfere with other wind farms (see Section 18.7.2.1).
OMU-O-02	Potential interference with oil and gas activities - from general development of the Project.	There is potential for an impact pathway of the Project's infrastructure and activities to interfere with oil and gas activities (see Section 18.7.2.2).
OMU-O-03	Physical impacts on subsea cables and pipelines - from general development of the Project.	There is potential for an impact pathway of the Project's infrastructure to impact subsea cables and pipelines (see Section 18.7.2.3).
OMU-O-04	Impacts on Carbon Capture and Storage (CCS) sites - from general development of the Project.	There is potential for an impact pathway of the Project's infrastructure and activities to interfere and impact with CCS sites and activities (see Section 18.7.2.4).

Impact ID	Impact and Project Activity	Rationale
Decommissioning		
OMU-D-01	Potential interference with other wind farms – <i>decommissioning activities not yet defined</i> .	Decommissioning impacts are scoped in; however, details of offshore decommissioning activities are not known at this stage. As discussed in Section 18.7.3 , decommissioning impacts will be assessed in detail through the Offshore Decommissioning Programme (see Table 18-3 , Commitment ID CO21) where relevant, which will be developed prior to the construction of the offshore works. In this assessment, it is assumed that most decommissioning activities would be the reverse of their construction counterparts, and that their impacts would be of similar nature to, and no worse than, those identified during the construction phase.
OMU-D-02	Potential interference with oil and gas activities – <i>decommissioning activities not yet defined</i> .	
OMU-D-03	Physical impacts on subsea cables and pipelines – <i>decommissioning activities not yet defined</i> .	
OMU-D-04	Impacts on Carbon Capture and Storage (CCS) sites – <i>decommissioning activities not yet defined</i> .	

18.4.3 Embedded Mitigation Measures

20. The Project has made several commitments to avoid, prevent, reduce or, if possible, offset potential adverse environmental effects through mitigation measures embedded into the evolution of the Project Design Envelope. These embedded mitigation measures include actions that will be undertaken to meet other existing legislative requirements and those considered to be standard or best practice to manage commonly occurring environmental effects. The assessment of likely significant effects has therefore been undertaken on the assumption that these measures are adopted during the construction, operation and decommissioning phases.
21. **Table 18-3** identifies proposed embedded mitigation measures that are relevant to the other marine users assessment.
22. Full details of all commitments made by the Project are provided within the Commitments Register in **Volume 2, Appendix 6.3 Commitments Register**. A description of how the Commitments Register should be used alongside the PEIR chapter is provided in **Volume 2, Appendix 1.2 Guide to PEIR** and **Chapter 6 Environmental Impact Assessment Methodology**. In addition, a list of draft outline management plans which are submitted with the PEIR for consultation is provided in **Section 1.10 of Chapter 1 Introduction**. These documents will be further refined and submitted along with the DCO application. See **Volume 2, Appendix 1.2 Guide to PEIR** for a list of all PEIR documents.

Table 18-3 Embedded Mitigation Measures Relevant to Other Marine Users

Commitment ID	Proposed Embedded Mitigation	How the Embedded Mitigation will be Secured	Relevance to Other Marine Users Assessment	Relevance to Impact ID
CO7	The Project will ensure compliance with Marine Guidance Note (MGN) 654 and its annexes, where applicable, including implementation of an Emergency Response Cooperation Plan (ERCoP) for all phases of the Project and completion of a Search and Rescue (SAR) checklist.	Deemed Marine Licence (DML) Condition - Emergency Response and Cooperation Plan	Limits the worst-case effects on all receptors relating to other marine users.	OMU-C-01, OMU-O-01, OMU-D-01, OMU-C-02, OMU-D-02, OMU-C-03, OMU-O-03, OMU-D-03, OMU-C-04, OMU-O-04, OMU-D-04
CO9	Aids to navigation (marking and lighting) will be deployed in accordance with the latest relevant available standard industry guidance and as advised by Trinity House, Maritime and Coastguard Agency (MCA) and Civil Aviation Authority (CAA) and Ministry of Defence (MoD) as appropriate. This will include a buoyed construction area around the Array Area. Consultation with Trinity House, MCA, and CAA will occur to determine appropriate lighting and marking.	DML Condition - Aids to Navigation Plan	Limits the effects on transiting other marine users, such as shipping, fishing, oil and gas operators, MOD, and recreational operators.	OMU-C-01, OMU-O-01, OMU-D-01, OMU-C-02, OMU-D-02, OMU-C-03, OMU-O-03, OMU-D-03, OMU-C-04, OMU-O-04, OMU-D-04
CO10	A Vessel Traffic Monitoring Plan will be developed and will include provision for monitoring of vessel traffic during the construction phase.	DML Condition	Limits vessel interactions on all receptors relating to other marine users.	OMU-C-01, OMU-C-02, OMU-C-03, OMU-C-04
CO11	<p>Advanced warning and accurate location details of construction, maintenance, and decommissioning operations, associated safety zones and advisory safe passing distances will be given via Notifications to Mariners and Kingfisher Bulletins at least 14 days prior where possible.</p> <p>The Project will ensure that local Notifications to Mariners are updated and reissued at weekly intervals during construction activities and at least five days before any planned operation and maintenance works and supplemented with very high frequency (VHF) radio broadcasts agreed with the Maritime and Coastguard Agency (MCA) in accordance with the construction and monitoring programme approved under the relevant Deemed Marine Licence (DML) condition.</p> <p>In the event of any cable exposure on or above the seabed, notification to other marine users will be issued via Notices to Mariners and Kingfisher Bulletins confirming the location and extent of the exposure.</p>	DML condition	Limits the worst-case effects on all receptors relating to other marine users.	OMU-C-01, OMU-O-01, OMU-D-01, OMU-C-02, OMU-D-02, OMU-C-03, OMU-O-03, OMU-D-03, OMU-C-04, OMU-O-04, OMU-D-04
CO12	Project vessels will ensure compliance with Flag State regulations including the Convention on the International Regulations for Preventing Collisions at Sea (COLREG) (International Maritime Organization (IMO), 1972/77) and International Convention for the Safety of Life at Sea (SOLAS) (IMO, 1974).	International maritime regulations	Limits the effects on transiting other marine user. Such as shipping, fishing, oil and gas operators, MOD and recreational operators.	OMU-C-01, OMU-O-01, OMU-D-01, OMU-C-02, OMU-D-02, OMU-C-03, OMU-O-03, OMU-D-03, OMU-C-04, OMU-O-04, OMU-D-04

CHAPTER 18 OTHER MARINE USERS

Commitment ID	Proposed Embedded Mitigation	How the Embedded Mitigation will be Secured	Relevance to Other Marine Users Assessment	Relevance to Impact ID
CO14	Marine coordination for project vessels will be implemented through Detailed Construction and Monitoring Programme (Construction Phase) and Offshore Operations and Maintenance Plan (O&M Phase).	DML Condition - Offshore Construction and Monitoring Programme DML Condition - Offshore Operations and Maintenance Plan	Limits the effects on transiting other marine user. Such as shipping, fishing, oil and gas operators, MOD and recreational operators.	OMU-C-01, OMU-O-01, OMU-D-01, OMU-C-02, OMU-D-02, OMU-C-03, OMU-O-03, OMU-D-03, OMU-C-04, OMU-O-04, OMU-D-04
CO15	<p>A Fisheries Liaison and Coexistence Plan (FLCP) will be provided in accordance with the Outline FLCP. The FLCP will include commitment to ongoing liaison with fishermen throughout all stages of the Project, based upon the Fisheries Liaison with Offshore Wind and Wet Renewables Group (FLOWW) (2014, 2015) guidance (or latest relevant available guidance) and specifically the following:</p> <ul style="list-style-type: none"> • The appointment of a company Fisheries Liaison Officer (FLO) to maintain effective communications between the Project and fishermen; • Appropriate liaison with relevant fishing interests to ensure that they are appropriately fully informed of development planning and any offshore activities and works; • The provision of advance warning and accurate location details of construction, maintenance and decommissioning operations, associated safety zones and advisory passing distances, to be given via Notices to Mariners and Kingfisher Bulletins; and • Specific to the UK potting fishery the implementation of evidence-based mitigation in line with relevant FLOWW guidelines. 	DML Condition - Fisheries Liaison and Coexistence Plan	Limits the effects on impacts relating to the fisheries, which is assessed in Chapter 14 Commercial Fisheries .	OMU-C-01, OMU-O-01, OMU-D-01, OMU-C-02, OMU-D-02, OMU-C-03, OMU-O-03, OMU-D-03, OMU-C-04, OMU-O-04, OMU-D-04
CO16	There will be appropriate marking of all offshore infrastructure associated with the Project on suitably scaled UK Hydrographic Office (UKHO) Admiralty Charts.	DML Condition	Limits the worst-case effects on all receptors relating to other marine users.	OMU-C-01, OMU-O-01, OMU-D-01, OMU-C-02, OMU-D-02, OMU-C-03, OMU-O-03, OMU-D-03, OMU-C-04, OMU-O-04, OMU-D-04
CO17	Safety zones of up to 500m will be applied for during construction, major maintenance and decommissioning phases and up to 50m for installed structures pre-commissioning. Where defined by risk assessment, guard vessels will also be used to ensure adherence with safety zones or advisory passing distances to mitigate impacts which pose a risk to surface navigation during construction, maintenance and decommissioning phases. Where deemed appropriate by risk assessment, guard vessels will be used to reduce risks to surface navigation during construction, maintenance and decommissioning.	Secured through a Safety Zone Application submitted post-consent	Limits the effects on transiting other marine user. Such as shipping, fishing, oil and gas operators, MOD and recreational operators.	OMU-C-01, OMU-O-01, OMU-D-01, OMU-C-02, OMU-D-02, OMU-C-03, OMU-O-03, OMU-D-03, OMU-C-04, OMU-O-04, OMU-D-04
CO21	An Offshore Decommissioning Programme will be provided prior to the construction of the offshore works and implemented at the time of decommissioning, based on the relevant guidance and legislation.	DCO Requirement - Offshore Decommissioning Programme	Limits the worst-case effects on all receptors relating to other marine users.	OMU-C-01, OMU-O-01, OMU-D-01, OMU-C-02, OMU-D-02, OMU-C-03, OMU-O-03, OMU-D-03, OMU-C-04, OMU-O-04, OMU-D-04

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Commitment ID	Proposed Embedded Mitigation	How the Embedded Mitigation will be Secured	Relevance to Other Marine Users Assessment	Relevance to Impact ID
CO23	At the landfall, trenchless installation techniques will be implemented and exit pits will be located beyond Mean Low Water Springs (MLWS). Installation will be at a suitable depth below the base of the cliff to avoid potential impacts to the Withow Gap Site of Special Scientific Interest (SSSI).	DCO Works DCO Requirement - Code of Construction Practice	Limits the effects relating to other marine users within the intertidal zone.	OMU-C-01, OMU-O-01, OMU-D-01, OMU-C-02, OMU-D-02, OMU-C-03, OMU-O-03, OMU-D-03, OMU-C-04, OMU-O-04, OMU-D-04
CO24	A Cable Specification and Installation Plan will be provided and submitted for approval prior to offshore construction. The Cable Specification and Installation Plan will detail the methods used for construction of offshore export and inter-array cables. Where possible, cable burial will be the preferred method for cable protection. Where cable protection is required, this will be minimised so far as is feasible. All cable protection will adhere to the requirements of Marine Guidance Note (MGN) 654 with respect to changes greater than 5% to the under-keel clearance in consultation with the Maritime and Coastguard Agency (MCA) and Trinity House. Any damage, destruction or decay of cables must be notified to the MCA, Trinity House, Kingfisher and UK Hydrographic Office (UKHO) no later than 24 hours after being discovered.	DML Condition - Cable Specification and Installation Plan	Limits the worst-case effects on all receptors relating to other marine users.	OMU-C-01, OMU-O-01, OMU-D-01, OMU-C-02, OMU-D-02, OMU-C-03, OMU-O-03, OMU-D-03, OMU-C-04, OMU-O-04, OMU-D-04
CO28	An Offshore Operations and Maintenance Plan (O&M) will be provided prior to commencement of operation and will outline the reasonably foreseeable O&M offshore activities.	DML Condition - Offshore Operations and Maintenance Plan	Limits the worst-case effects on all receptors relating to other marine users.	OMU-C-01, OMU-O-01, OMU-D-01, OMU-C-02, OMU-D-02, OMU-C-03, OMU-O-03, OMU-D-03, OMU-C-04, OMU-O-04, OMU-D-04
CO31	All dropped objects will be reported to the Marine Management Organisation (MMO) using the dropped object form as soon as reasonably practicable and in any event within 24 hours of the undertaker becoming aware of an incident.	DML Condition	Limits the worst-case effects on all receptors relating to other marine users.	OMU-C-01, OMU-O-01, OMU-D-01, OMU-C-02, OMU-D-02, OMU-C-03, OMU-O-03, OMU-D-03, OMU-C-04, OMU-O-04, OMU-D-04

23. The Commitments Register is provided at PEIR stage (see **Volume 2, Appendix 6.3 Commitments Register**) to provide stakeholders with an early opportunity to review and comment on the proposed commitments. Proposed commitments may evolve during the pre-application phase as the EIA progresses and in response to refinements to the Project Design Envelope and stakeholder feedback. The final commitments will be confirmed in the Commitments Register which will be submitted with the DCO application.

18.4.4 Realistic Worst-Case Scenarios

24. To provide a precautionary, but robust, assessment at this stage of the Project's development process, a realistic worst-case scenario has been defined in **Table 18-4** for each impact scoped into the assessment (as outlined in **Section 18.4.2**). The realistic worst-case scenarios are derived from the range of parameters included in the design envelope. They ensure that the assessment of likely significant effects is based on the maximum potential impact on the environment. Should an alternative development scenario be taken forward in the final design of the Project, the resulting effects would not be greater in effect significance. Further details on the design envelope approach are provided in **Chapter 6 Environmental Impact Assessment Methodology**.
25. Following the PEIR publication and statutory consultation, further design refinements will be made based on ongoing engineering studies and considerations of the EIA and consultation feedback. Therefore, realistic worst-case scenarios presented in the PEIR may be updated in the ES. The design envelope will be refined where possible to retain design flexibility only where it is needed.

Table 18-4 Realistic Worst-Case Scenarios for Impacts on Other Marine Users

Impact ID	Impact and Project Activity	Realistic Worst-Case Scenario	Notes and Rationale
Construction			
OMU-C-01 OMU-C-02 OMU-C-03 OMU-C-04	<p>Impacts from general development of the Project in relation to:</p> <ul style="list-style-type: none"> Potential interference with other wind farms activities - from general development of the Project; Potential interference with oil and gas activities - from general development of the Project; Physical impacts on subsea cables and pipelines - from general development of the Project; and Impacts on CCS sites - from general development of the Project. 	<p>DBD Array Area</p> <ul style="list-style-type: none"> Total developable array area – approximately 262km²; Installation of up to 113 wind turbines and two offshore platforms (OPs) within the DBD Array Area; and Safety zones of 500m radius from any construction activity (to be applied for). <p>Offshore Export Cable Corridor</p> <ul style="list-style-type: none"> 400km inter-array cable length with up to 10% of the cable length requiring surface laid cable protection; 800km export cable length with up to 20% of the cable length requiring surface laid cable protection (2x 400km cable circuits); and Approximate number of cable / pipeline crossings (16 cables and 3 pipelines) – 19. <p>Vessel Movements</p> <ul style="list-style-type: none"> Maximum total vessels offshore simultaneously – 90. 	<p>Maximum export cable length assumes worst-case that cable circuits are laid and buried in separate trenches rather than bundled.</p> <p>Assumes 16 export cable crossings and three pipeline crossings.</p>
Operation and Maintenance			
OMU-O-01 OMU-O-02 OMU-O-03 OMU-O-04	<p>Impacts from general development of the Project in relation to:</p> <ul style="list-style-type: none"> Potential interference with other wind farms - from general development of the Project; Potential interference with oil and gas activities - from general development of the Project; Physical impacts on subsea cables and pipelines - from general development of the Project; and Impacts on CCS sites - from general development of the Project. 	<p>Maximum infrastructure</p> <ul style="list-style-type: none"> Total area of development within array – approximately 262km²; 113 wind turbines and two OPs within the DBD Array Area; Maximum turbine height – 370m (above highest astronomical tide); Total Array Area infrastructure (including Inter-Array Cable protection): <ul style="list-style-type: none"> Total worst case turbine footprint with scour protection (14,314m² maximum scour protection area per foundation including structure footprint (135m diameter) x 113 WTGs) = 1,617,482m²; Total worst-case scour protection for two OPs with monopile foundations (25,000m² per monopile foundation including scour protection x 2 OPs) = 50,000m²; Inter-array cable rock / remedial protection (10m width of rock berm protection x 40km length of exposed inter-array cables requiring remedial protection) = 400,000m²; Total footprint of inter-array cable crossing material – 5,000m²; Total Array Area (sum of the above) = 2,072,482m². Total export cable protection – 1,600,000m²; Total footprint of pipeline / cable crossing material (offshore export cable corridor)– 60,800m²; and Anticipated 35-year design lifespan. <p>Vessel Movements</p> <ul style="list-style-type: none"> Maximum total vessels offshore simultaneously – 16. 	<p>The worst-case operation and maintenance phase impact would be the extent to which the footprint of the infrastructure that would impinge or result in indirect impacts on nearby wind farms.</p> <p>The worse case scenario for OP is two small platforms as opposed to one large platform, both in terms of extent and volumes, hence only the worst case parameters shown.</p> <p>Vessel movement and activities in relation to operation and maintenance could also obstruct other marine users.</p>

Impact ID	Impact and Project Activity	Realistic Worst-Case Scenario	Notes and Rationale
Decommissioning			
OMU-D-01 OMU-D-02 OMU-D-03 OMU-D-04	<p>Impacts from general development of the Project in relation to:</p> <ul style="list-style-type: none">Potential interference with other wind farms – <i>decommissioning activities not yet defined</i>;Potential interference with oil and gas activities – <i>decommissioning activities not yet defined</i>;Physical impacts on subsea cables and pipelines – <i>decommissioning activities not yet defined</i>; andImpacts on CCS sites – <i>decommissioning activities not yet defined</i>.	<p>The final decommissioning strategy of the Project's offshore infrastructure has not yet been decided. For a description of potential offshore decommissioning works, refer to Chapter 4 Project Description.</p> <p>It is recognised that regulatory requirements and industry best practice change over time. Therefore, the details and scope of offshore decommissioning works will be determined by the relevant regulations and guidance at the time of decommissioning. Specific arrangements will be detailed in an Offshore Decommissioning Programme (see Table 18-3, Commitment ID CO21), which will be submitted and agreed with the relevant authorities prior to the commencement of offshore decommissioning works.</p> <p>For this assessment, it is assumed that decommissioning is likely to operate within the parameters identified for construction (i.e. any activities are likely to occur within the temporary construction working areas and require no greater amount or duration of activity than assessed for construction). The decommissioning sequence will generally be the reverse of the construction sequence. It is therefore assumed that decommissioning impacts would likely be of similar nature to, and no worse than, those identified during the construction phase.</p>	<p>Decommissioning arrangements will be detailed in a Decommissioning Plan, which will be drawn up and agreed with the relevant stakeholders prior to construction.</p> <p>Worst-case is assumed similar to that as mentioned above for construction.</p>

18.5 Assessment Methodology

18.5.1 Data and Information Sources

26. Sources that have been used to inform the assessment are listed in **Table 18-5**. No site-specific surveys were undertaken for the other marine users assessment.

Table 18-5 Desk-based Data and Information Sources

Data Set	Spatial Coverage	Year	Source
Offshore Cables	UK	2024	https://www.marinefind.co.uk/
Wind farms	UK and EU	2024	https://www.4coffshore.com/offshorewind/
Oil and Gas Infrastructure	UK	2024	https://ogauthority.maps.arcgis.com/home/index.html
Aggregate Sites	UK	2024	https://thecrownestate.maps.arcgis.com/home/index.html
Dredger Transit Routes	UK	2024	https://bmapa.org/issues/renewable_energy.php
Disposal Sites	UK	2024	https://data.cefas.co.uk/view/407
CCS	UK	2024	Global CCS Map SCCS Corporate UKCS Renewables: Lease Agreements

18.5.2 Impact Assessment Methodology

27. **Chapter 6 Environmental Impact Assessment Methodology** sets out the overarching approach to the impact assessment methodology. The topic-specific methodology for the other marine users assessment is described further in this section.

18.5.2.1 Definitions

28. For each potential impact, the assessment identifies receptors sensitive to that impact and implements a systematic approach to understanding the impact pathways and the level of impacts (i.e. magnitude) on given receptors. The definitions of sensitivity and magnitude for the purpose of the other marine users’ assessment are provided in **Table 18-6** and **Table 18-7**.

Table 18-6 Definition of Sensitivity

Sensitivity	Definition
High	High value activity / activity fundamental to the operator or infrastructure that is of international or national economic importance. No redundancy available in the event of impact. Asset very sensitive to the impact. For example, a gas pipeline, electrical infrastructure or telecommunication cable supporting UK or European activity or nationally important aggregates area where extraction company has no access to areas of equal quality aggregates.
Medium	Medium value activity. Impact to asset would significantly reduce operators’ activities but not result in complete failure to continue operations. Limited redundancy available. Asset regionally important. Asset has limited tolerance of impact. For example, a gas pipeline, electrical infrastructure or telecommunication cable, where asset owners have some potential for redundancy planning. Aggregates areas where extraction company has some, but limited access to equal quality aggregate.
Low	Low value activity. Impact to asset would have limited implications on operator / public either due to the availability of redundancy or limited pathway for impact. Asset has some tolerance of impact. For example, an electrical or telecommunication cable with ability to undertake redundancy planning to limit impact. Aggregates area where extraction company has access to large areas of equal quality aggregate.
Negligible	Low value activity. Operators’ activities would not be significantly reduced by an impact. Asset generally tolerant of impact. Limited impact to asset owners or local community in case of damage or failure.

Table 18-7 Definitions of Magnitude of Impacts

Magnitude	Definition
High	Loss of resource and / or quality and integrity of a receptor; severe damage to key characteristics, features or elements. For example, accidental damage to an asset resulting in permanent or long-term inoperability or complete loss of access to economically important asset.
Medium	Loss of resource, but not adversely affecting the integrity of resource; partial loss of / damage to key characteristics, features or elements. For example, damage to an asset that results in either short term, complete inoperability or long term reduced functionality. Partial loss of access to an economically important asset, or short-term complete loss of access.
Low	Some measurable change in resource attributes, quality or vulnerability, minor loss, or alteration to, one (maybe more) key characteristics, features or elements. For example, accidental damage to an asset resulting in short term reduction of functionality but not complete loss of function. Short term disruption to access to an asset.
Negligible	Very minor loss or detrimental alteration to one or more characteristics, features or elements, and / or slight alteration to a receptor.

18.5.2.2 Significance of Effect

29. The assessment of significance of an effect is informed by the sensitivity of the receptor and the magnitude of the impact. The determination of significance is guided by the use of an impact significance matrix presented in **Table 6-8 of Chapter 6 Environmental Impact Assessment Methodology**. Definitions of each level of significance are provided in **Table 18-8**. For the purposes of this assessment, any effect that is of major or moderate significance is considered to be significant in EIA terms, whether this be adverse or beneficial. Any effect that is minor, negligible or no change is not significant.

Table 18-8 Definition of Effect Significance

Significance	Definition
Major	Very large or large change in receptor condition, which is likely to give rise to important considerations at a regional or district level because the receptor contributes to achieving national, regional or local objectives, or could result in exceedance of statutory objectives and / or breaches of legislation.
Moderate	Intermediate change in receptor condition, which is likely to be an important consideration at a local level.
Minor	Small change in receptor condition, which may be raised as local issues, but are unlikely to be important in the decision-making process.
Negligible	No discernible change in receptor condition.
No Change	No impact, therefore no change in receptor condition.

18.5.3 Cumulative Effects Assessment Methodology

30. The cumulative effect assessment (CEA) considers other plans and projects that may act collectively with the Project to give rise to cumulative effects on other marine users receptors. The general approach to the CEA for other marine users involves screening for potential cumulative effects, identifying a short list of plans and projects for consideration and evaluating the significance of cumulative effects. **Chapter 6 Environmental Impact Assessment Methodology** and **Volume 2, Appendix 6.4 Cumulative Effects Screening Report - Offshore** provide further details on the general framework and approach to the CEA.

18.5.4 Transboundary Effects Assessment Methodology

31. The transboundary effect assessment considers the potential for effects to occur as a result of the Project on other marine users receptors within the Exclusive Economic Zone (EEZ) of other European Economic Area (EEA) member states or other interests of EEA member states. **Chapter 6 Environmental Impact Assessment Methodology** provides further details on the general framework and approach to the transboundary effect assessment.
32. For other marine users, there is potential for transboundary effects upon other marine users due to the Project’s construction, operation and maintenance, and decommissioning activities. However, the closest non-UK offshore wind farm is in German waters approximately 90km away (H2-20), adjacent to the Dutch exploration block E01. The international cables or pipelines identified which could come into conflict with the Project are assessed as part of physical impacts on subsea cables and pipelines (**Section 18.7.1.3**). Any potential impacts to these assets are assessed in **Section 18.9** of this chapter.

18.5.5 Assumptions and Limitations

33. This chapter provides a preliminary assessment of the likely significant effects of the Project in relation to other marine users using information available at the time of drafting as described in **Chapter 6 Environmental Impact Assessment Methodology**. This assessment will be refined where relevant and presented in the ES to be submitted with the DCO application.
34. The results presented in the following sections are based on early design assumptions and initial assessments which will be refined and presented in the final ES to be submitted with the DCO application.
35. The characterisation of the baseline environment and the resulting impact assessment is based on publicly available information, purchased data or information gained directly from the relevant operators / organisations during consultation. There may be elements of uncertainty associated with the locations of some existing infrastructure and where this is the case, this will be discussed with the owners and operators and confirmed, if required, during pre-construction surveys.

18.6 Baseline Environment

36. The following section provides details of the baseline environment that may be affected by the Project. Further details of all infrastructure and projects and their distance to the Project can be found in **Volume 2, Appendix 6.4 Cumulative Effects Screening Report – Offshore**.

18.6.1 Existing Baseline

37. The following other marine user receptors are located within the 50km Study Area for this chapter:

- Offshore wind farms;
- Oil and gas infrastructure;
- Subsea cables;
- Pipelines;
- CCS;
- Aggregate extraction;
- Disposal sites; and
- Ministry of Defence activities.

18.6.1.1 Offshore Wind Farms

38. Offshore wind developments that have been consented or are known projects in development within a 50km buffer of the DBD Array Area are listed in **Table 18-9** and shown on **Figure 18-1**.

Table 18-9 Offshore Wind Farm Projects within 50km of the DBD Array Area

Offshore Wind Farm	Distance from the Offshore Development Area (km)	Status
Dogger Bank A (DBA)	43	Under construction.
Dogger Bank C (DBC)	Adjacent	Under construction.
Sofia	18	Under construction.

39. Offshore wind farm ECCs within the Study Area are listed with their status in **Table 18-10** and shown on **Figure 18-1**.

Table 18-10 Offshore Wind Farm Projects Export Cables within the Offshore Development Area

Offshore Wind Farm	Wind Farm Status
Dogger Bank A (DBA)	Under construction.
Dogger Bank B (DBB)	Under construction.

Offshore Wind Farm	Wind Farm Status
Dogger Bank C (DBC)	Under construction.
Dogger Bank South (DBS)	Examination.
Hornsea Project 4	Consent granted, pre-construction.
Ossian	In planning.
Sofia	Under construction.

18.6.1.2 Oil and Gas Infrastructure

40. The southern North Sea has significant oil and gas infrastructure. This includes surface (platforms and buoys) and sub-surface (wells, wellheads, manifolds and pipelines) infrastructure.

41. There is no surface infrastructure within the DBD Array Area. The nearest oil and gas infrastructure is associated with the Cavendish, Gordon and Esmond gas fields. The nearest platform (Cavendish), approximately 86km south-west of the DBD Array Area, ceased production in August 2018 and was approved for decommissioning in June 2020 (INEOS UK SNS Limited, 2020). Decommissioning activities for Cavendish are scheduled for five years (Lepic, 2020).

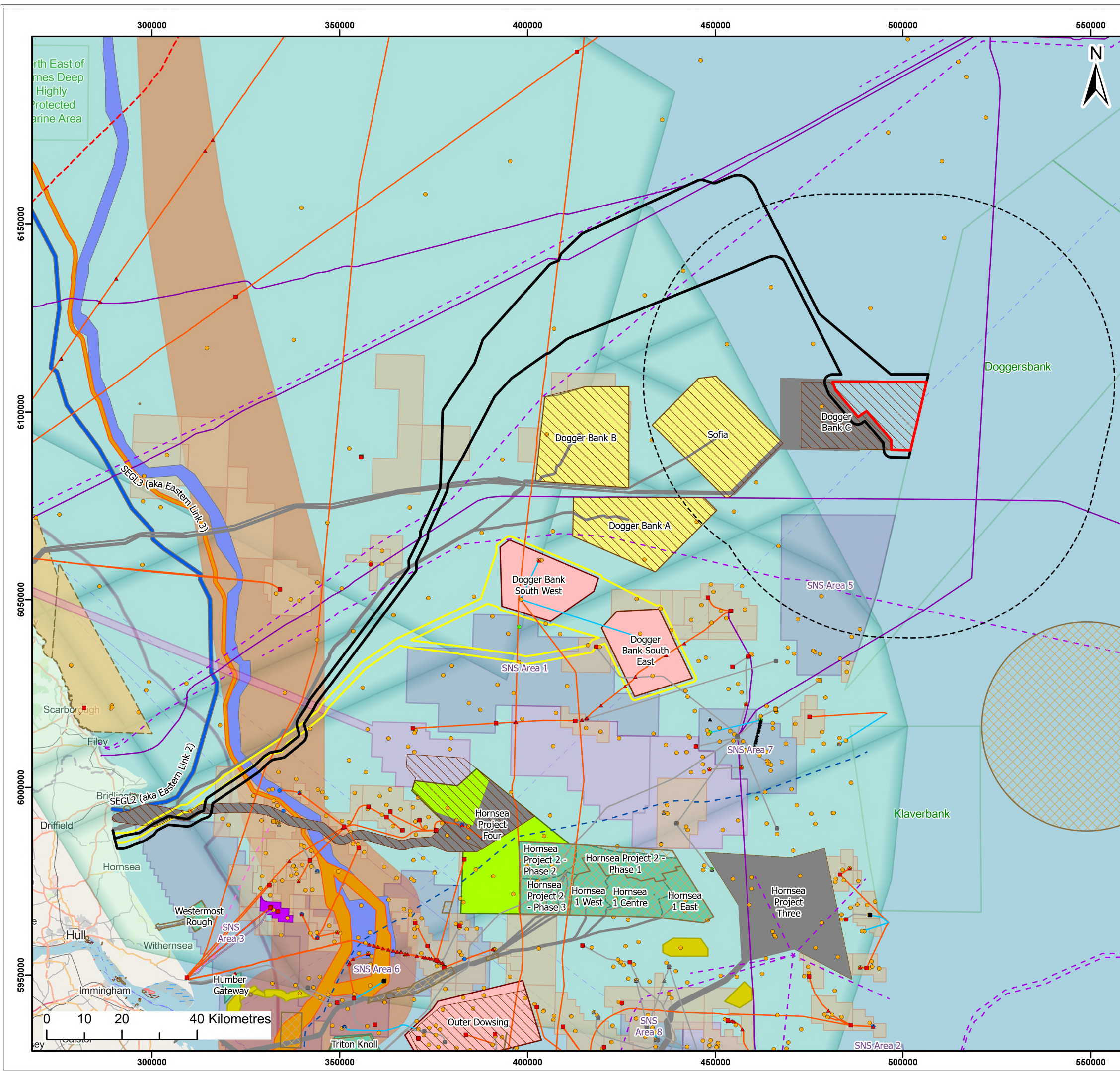
42. There is no active sub-surface infrastructure within the DBD Array Area. The nearest active well lies 60km south-west, which is operated by Neptune E&P UK Ltd and is found within Block Number 12.

43. Within the Study Area, there are two pipelines that cross the Offshore ECC, with both pipelines carrying gas. These are listed in **Table 18-11** and displayed on **Figure 18-1**. No pipelines run through the DBD Array Area.

Table 18-11 Pipelines within the Offshore Development Area

Pipeline	Material	Status	Number of Crossings
Langeled	Gas	Active	1
Shearwater to Bacton Seal line		Active	1

44. The Offshore Development Area also overlaps with the following oil and gas blocks, licenced for exploration and production: 42/22, 42/23, 42/27, 42/19, 42/20b, 43/11, 42/15c, 42/5b, 43/1a, 43/2a, 37/22a, 37/22b, 37/17, 37/18/ 37/23b, 37/23a, 37/28b, 37/24, 37/19, 37/20, 37/25, 38/16, 38/21a, 38/17.



Legend:

Dogger Bank D Array Area

Offshore Development Area

Dogger Bank D Array Area 50km Buffer

Carbon Capture Storage Licensing Round

Carbon Capture Storage Licence Area Out of Round

PEXA Danger Areas

Oil & Gas Licence Block

Not in Use

Precommissioned Pipeline

Telecommunications Cable

Out of Use Cable

Power Cable

Viking Link Interconnector

Dogger Bank South Offshore Boundary

SEGL2 Proposed Cable

SEGL3 Proposed Cable

SEGL4 Proposed Cable

Ossian

Natural Gas Storage Site

Marine Aggregate Site

Offshore Mining Site

Offshore Wind Export Cable Corridor

Surface Infrastructure

Abandoned

Active

Not in Use

Precommissioned

Sub-surface Infrastructure

Abandoned

Active

Not in Use

Wells

Drilling

Completed (Operating)

Plugged

Abandoned

Cables & Pipelines

Abandoned Pipeline

Active Pipeline

Other Offshore Wind Farms

Active/In Operation

Consented

Government Support on Offer

Pre-planning Application

Under Construction

Marine Disposal Site

Open

Disused

Closed

Source: © Haskoning DHV UK Ltd, 2024; © Cefas, 2024; © North Sea Transmission Authority, 2024; © RWE, 2023; © KIS-ORCA, 2022. Contains data provided by The Crown Estate that is protected by copyright and database rights. © OpenStreetMap (and contributors, CC-BY-SA)

Project:

Dogger Bank D Offshore Wind Farm

Title:

Other Marine Users Study Area

Figure: 18.1

Drawing No: PC6250-RHD-XX-OF-DR-GS-0054

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	21/05/2025	JH	AB	A3	1:1,000,000
01	29/08/2024	JH	AB	A3	1:1,000,000

Co-ordinate system: WGS 1984 UTM Zone 31N

18.6.1.3 Subsea Cables

45. The southern North Sea contains a considerable number of cables, primarily telecommunication connections between the UK and continental Europe. Within the Offshore Development Area, three active subsea cables and three out of use cables cross the offshore ECC:
- TGN North Europe telecommunications cable;
 - Pangea Segment 1 telecommunications cable;
 - Havhingsten Segment 2.1 telecommunications cable;
 - Cantat 3 – Seg F4 telecommunications cable;
 - The out of use Newbiggin – Sondervig No2 telecommunications cable;
 - The out of use UK to Denmark telecommunications cable¹;
 - The out of use UK – Germany 6 telecommunications cable;
 - The out of use UK – Norway 2 telecommunications cable;
 - The out of use Faroese telecommunications cable; and
 - The out of use Norderney to Scarborough telecommunications cable.
46. There are no existing cables (telecommunications or export cables) present within the DBD Array Area. There are no existing offshore export cables within or near the Offshore ECC (see **Table 18-10**). It is important to note that any cables in planning that aren't already part of the existing baseline will be included in the CEA (see **Section 18.8**).

18.6.1.4 Carbon Capture and Storage

47. A new leasing round was opened by the North Sea Transition Authority (NSTA) in June 2022 and includes two CCS areas within the offshore ECC. These two areas are:
- Southern North Sea Area 1; and
 - Southern North Sea Area 3.
48. Outside of the NSTA leasing round, the ECC of the proposed Northern Endurance CCS Project crosses the Study Area. It lies 127km south-west of the DBD Array Area and associated pipelines are proposed to run from Redcar and Easington, which would both cross the offshore ECC, with the Easington pipeline entering into the offshore ECC (but not crossing) in two locations.

18.6.1.5 Aggregate Extraction

49. There are no aggregate production or mining areas within the Study Area. The nearest areas are four production areas Area 514/1/2/3/4 licenced to CEMEX UK Marine Ltd located approximately 12km to the south-east of the Offshore Development Area, and Area 506 licensed to DEME Building Materials Ltd located around 57km south of the Offshore Development Area.
50. Dredging vessels may transit through the DBD Array Area. Interactions between the Project and vessel traffic are covered in **Chapter 15 Shipping and Navigation**.

18.6.1.6 Dumping and Disposal Sites

51. There are three open disposal sites within 50km of the Offshore Development Area namely:
- Bridlington A;
 - DBA; and
 - DBB.
52. There is one open disposal site within the Study Area and which encompasses the DBD Array Area, namely, Dogger Bank C (formerly Dogger Bank Teesside A) (DG030), as shown on **Figure 18-1**. The closest of these active disposal sites outside of the Array Area is DBB, which is located approximately 4km at its closest point to the Study Area. Another open disposal site is Dogger Bank Teesside B (DG025; known as Sofia), which lies 17.75km west of the DBD Array Area. Furthermore, the closed disposal sites nearby are:
- Bridlington Bay B, 1.5km at its closest point; and
 - Westermest Rough, 18km at its closest point.

18.6.1.7 Ministry of Defence Activities

53. The following Practice and Exercise Areas (PEXA) encompass the Offshore Development Area:
- D323B;
 - D323C;
 - D323F; and
 - D412.

¹ Crosses at two separate locations

54. These sites are designated as Royal Airforce (RAF) Danger Areas for Air Combat Training and High Energy Manoeuvres between 5,000 ft and 66,000 ft.
55. As a result of both World War 1 and World War 2, there is also potential for Unexploded Ordnance (UXO) within the Study Area and the wider southern North Sea region. Locations of any UXO would be determined post-consent during detailed pre-construction surveys, with mitigation agreed in consultation with Natural England, the Joint Nature Conservation Committee (JNCC) and the MMO. Any assessments for UXO clearance in the EIA will be for information only and are not part of the DCO application. A separate Marine Licence application(s) will be made prior to construction for UXO investigation and clearance works, with an accompanying assessment of UXO clearance impacts on other marine users. Further information on UXOs can be found in **Chapter 12 Marine Mammals** and **Chapter 17 Offshore Archaeology**.

18.6.2 Predicted Future Baseline

56. The deployment of offshore wind in the UK is set to continue with an existing pipeline of projects in planning and further expansion expected to achieve a target of 50GW offshore wind capacity by 2030. Therefore, offshore wind deployment in the North Sea, and potentially in the vicinity of Dogger Bank is likely to increase over the next decade.
57. There are plans to further integrate the UK electrical network with European markets through the installation of interconnector cables. This is likely to lead to an increase in electricity transmission cables across the North Sea and in the vicinity of the Dogger Bank. The planned projects in relation to this that are currently known are assessed further in the CEA, see **Section 18.8**.
58. Oil and gas exploration in the North Sea is set to continue, albeit at a slower rate than seen in previous decades, the NSTA launched the 33rd licensing round for oil and gas exploration in 2022 (NSTA, 2022). This licensing round included blocks in the vicinity of the Project. Furthermore, a commitment to undertake future licensing rounds past the current 33rd round was announced on the 31st of July 2023 by the UK Government and NSTA (HM Government, 2023). However, decommissioning of existing platforms and infrastructure is also expected to occur in the coming decades (Royal Academy of Engineering, 2013).
59. Rounds for CCS licensing may take place in the future, which may be of a similar scale to the recent round launched by the NSTA in June 2022. This included several areas in the vicinity of the Dogger Bank (Offshore Energy, 2022b). In September 2023 NSTA announced a list of companies (total of 14) which have accepted licences following the UK's first-ever carbon storage licensing round. Twenty-one licences have been awarded in areas of depleted oil and gas reservoirs, which could store up to 30 million tonnes of CO₂ per year, including an area within the Offshore Development Area (see **Section 18.6.1.4**).

60. In addition, there is also potential for future aggregate extraction leasing rounds, held regularly by The Crown Estate (The Crown Estate, 2024), to be located in the vicinity of the Project.

18.7 Assessment of Effects

61. The likely significant effects to other marine users' receptors that may occur during construction, operation and decommissioning of the Project are assessed in the following sections. The assessment follows the methodology set out in **Section 18.5** and is based on the realistic worst-case scenarios defined in **Section 23**, with consideration of embedded mitigation measures identified in **Section 18.4.3**.

18.7.1 Potential Effects during Construction

18.7.1.1 Potential Interference with Other Wind Farms (OMU-C-01)

62. Interference of the Project with other wind farms could arise from the following:
- Navigational safety issues (e.g. vessel traffic and structures related to the Project interfering with existing vessel traffic routes to other wind farms);
 - Aviation (e.g. emergency helicopter operations from other wind farms being disrupted by the presence of wind turbines within the DBD Array Area); and
 - Overlap of infrastructure and potential interactions during construction.
63. Issues arising from shipping and navigation and aviation are assessed in **Chapter 15 Shipping and Navigation** and **Chapter 16 Aviation and Radar**, respectively, and are not considered further in this chapter.

18.7.1.1.1 Receptor Sensitivity

64. Wind farm construction activities have the potential to interfere with the activities of other wind farms. Any potential disruption caused to other wind farms could impact the Project's construction schedule. The sensitivity of offshore wind farms to interference is thereby deemed as **high**.

18.7.1.1.2 Impact Magnitude

65. As a result of the site selection process undertaken for the Project, there will be no overlap of the Offshore Development Area with any other offshore wind farm array areas. The only interaction between the Project and other offshore wind farms will be the crossing of the export cables outlined in **Section 18.6.1.1**.

66. Crossing and proximity agreements with relevant asset owners will determine how cable crossings are enabled and outline the proximity arrangements of construction activities for the existing subsea cables. The resultant locations, design and construction methodologies will reduce the physical impact upon other offshore wind export cables which may affect their operation or maintenance.
67. Relevant cable owners will be consulted during the pre-application and pre-construction phases of the Project. All commercial and technical agreements required would be put in place ahead of the commencement of construction. Crossing and proximity agreements would be agreed post-consent during the Project's design period.
68. Engagement with external stakeholders and the promulgation of information regarding planned vessel activities for the Project will allow for collaboration with other wind farm developers in the use of nearby port facilities, thereby reducing the pressure on their capacity. It is currently not known which port(s) will be used for the Project.
69. Taking into account the embedded mitigation measures outlined in **Section 18.4.3**, including advance promulgation of information regarding activities related to the Project and crossing and proximity agreements, the magnitude of impact will be **negligible**.

18.7.1.1.3 Effect Significance

70. Overall, it is predicted that the sensitivity is **high** and the magnitude of impact is **negligible**. The effect is therefore of **minor adverse** significance, which is **not significant** in EIA terms.

18.7.1.1.4 Additional Mitigation and Residual Effect

71. No additional mitigation is considered to be required for this effect.

18.7.1.2 Potential Interference with Oil and Gas Activities (OMU-C-02)

72. Wind farm construction activities have the potential to interfere with oil and gas operations in the following capacity:
 - Overlap of infrastructure and potential interactions during construction.

18.7.1.2.1 Receptor Sensitivity

73. Wind farm construction activities have the potential to interfere with the activities of nearby oil and gas operations. Any potential disruption caused to other oil and gas operations could impact the Project's construction schedule. The sensitivity of oil and gas infrastructure to interference is deemed to have a **high** sensitivity.

18.7.1.2.2 Impact Magnitude

74. As detailed in **Section 18.6.1.2**, there are no active oil and gas platforms within the Project Array Area. The only interaction between the Project and oil and gas infrastructure will be the potential crossing of pipelines that run through the DBD Array Area and offshore ECC.
75. The crossing and proximity agreements will determine how pipeline crossings are enabled and outline the proximity arrangements of construction activities to the existing pipelines. The resultant locations, design and construction methodologies will aim to reduce the physical impact upon other pipelines which may affect their operation.
76. The precise number of pipeline crossings is not yet known as the export cable layout will be determined post consent, though those within the Offshore ECC are considered in this assessment or the CEA.
77. Pipeline owners will be consulted by the Applicant during the development and pre-construction phases of the Project. All commercial and technical agreements would be put in place ahead of the commencement of construction. Crossing and proximity agreements would be agreed post-consent during the Project's design period.
78. Engagement with external stakeholders and the promulgation of information regarding planned vessel activities for the Project will allow for collaboration with oil and gas companies in the use of nearby port facilities, therefore reducing the pressure on their capacity. It is not currently known which port(s) will be used for the Project.
79. Taking into account the embedded mitigation measures outlined in **Section 18.4.3**, including advance promulgation of information regarding activities related to the Project and ensuring the marking and lighting of related infrastructure is done in consideration of existing oil and gas assets, the magnitude of impact will be **negligible**.

18.7.1.2.3 Effect Significance

80. Overall, it is predicted that the sensitivity of the receptor is **high** and the magnitude of impact is **negligible**. The effect is therefore of **minor adverse** significance, which is **not significant** in EIA terms.

18.7.1.2.4 Additional Mitigation and Residual Effect

81. No additional mitigation is considered to be required for this effect.

18.7.1.3 Physical Impacts on Subsea Cables (OMU-C-03)

82. Wind farm construction activities (such as cable and foundation installation, vessel anchoring and debris clearing operations) have the potential to cause damage to the other subsea cables in close proximity. This includes the subsea cables discussed in **Section 18.6.1.3** that route through the Project's offshore ECC. Any damage caused to subsea cables would be expensive to repair and could disrupt the telecommunications or power supply of the subsea cable operations.

18.7.1.3.1 Receptor Sensitivity

83. A worst-case scenario is assumed as being accidental damage to a subsea cable resulting from the Project's construction activities, reduce the cable capacity or make the cable operation redundant. It is therefore considered that the sensitivity of the receptor is **high**.

18.7.1.3.2 Impact Magnitude

84. The agreements will determine how cable crossings are enabled and outline the proximity arrangements of construction activities to the existing subsea cables. The resultant locations, design and construction methodologies will aim to reduce the physical impact upon other cables which may affect their operation.
85. The precise number of cable crossings is not yet known as the export cable layout will be determined post consent and information on the routes of a number of the offshore hybrid asset (OHA) is not available.
86. Cable owners will be consulted by the Applicant during the development and pre-construction phases the Project. All commercial and technical agreements would be put in place ahead of the commencement of construction. Crossing and proximity agreements would be agreed post-consent during the Project design period.
87. Taking into account the embedded mitigation measures outlined in **Section 18.4.3**, in addition to securing proximity and crossing agreements with operators, any impact is extremely unlikely and therefore the impact magnitude is **negligible**.

18.7.1.3.3 Effect Significance

88. Overall, it is predicted that the sensitivity of the receptor is **high** and the magnitude of impact is **negligible**. The effect is therefore of **minor adverse** significance, which is **not significant** in EIA terms.

18.7.1.3.4 Additional Mitigation and Residual Effect

89. No additional mitigation is considered to be required for this effect.

18.7.1.4 Impacts on Carbon Capture and Storage Sites (OMU-C-04)

90. Wind farm construction activities have the potential to interfere with CCS operations in the following capacity:

- Overlap of infrastructure and potential interactions during construction.

18.7.1.4.1 Receptor Sensitivity

91. Wind farm construction activities have the potential to interfere with the activities of nearby CCS operations. Any potential disruption caused to other CCS operations could impact the Project's construction schedule. The sensitivity of CCS infrastructure to interference is deemed to have a **high** sensitivity.

18.7.1.4.2 Impact Magnitude

92. As detailed in **Section 18.6.1.4**, there are no active CCS projects within the Project DBD Array Area. The only interaction between the Project and CCS infrastructure will be the potential crossing of pipelines that run through the Offshore ECC.
93. The crossing and proximity agreements will determine how pipeline crossings are enabled and outline the proximity arrangements of construction activities to the existing pipelines. The resultant locations, design and construction methodologies will aim to reduce the physical impact upon other pipelines which may affect their operation.
94. The precise number of pipeline crossings is not yet known as the offshore ECC will be determined post consent, though those within the Offshore ECC are considered in this assessment or the CEA.
95. Pipeline owners will be consulted during the development and pre-construction phases of the Project. All commercial and technical agreements would be put in place ahead of the commencement of construction. Crossing and proximity agreements would be agreed post-consent during the Project's design period.
96. Engagement with external stakeholders and the promulgation of information regarding planned vessel activities for the Project will allow for collaboration with CCS companies in the use of nearby port facilities, therefore reducing the pressure on their capacity. It is currently not known which port(s) will be used for the Project.
97. Taking into account the embedded mitigation measures outlined in **Section 18.4.2**, including advance promulgation of information regarding activities related to the Project and ensuring the marking and lighting of related infrastructure is done in consideration of CCS assets, the magnitude of impact will be **negligible**.

18.7.1.4.3 Effect Significance

98. Overall, it is predicted that the sensitivity of the receptor is **medium** and the magnitude of impact is **negligible**. The effect is therefore of **minor adverse** significance, which is **not significant** in EIA terms.

18.7.1.4.4 Additional Mitigation and Residual Effect

99. No additional mitigation is considered to be required for this effect.

18.7.2 Potential Effects during Operation

18.7.2.1 Potential Interference with Other Wind Farms (OMU-O-01)

100. Interference of the Project with other wind farms during operation could arise from the following:
- Infrastructure overlap (e.g. cable crossings); and
 - Wake effects / productivity losses due to the presence of wind farm.
101. Issues arising from shipping and navigation and aviation are assessed in **Chapter 15 Shipping and Navigation** and **Chapter 16 Aviation and Radar**, respectively, and are not considered further in this chapter.

18.7.2.1.1 Receptor Sensitivity

102. Due to the high commercial value, and potentially fragile nature of infrastructure associated with other wind farms, such as export cables, the sensitivity of other windfarms to interference from infrastructure overlap (such as any requirement for cable crossings) is considered to be **high**.
103. Given the purpose of other offshore wind farms is to maximise efficiency of electricity generation, and contribute to government clean energy targets, the sensitivity of offshore wind farms to interference through reduced efficiency associated with wake effect is **high**.

18.7.2.1.2 Impact Magnitude

104. In terms of infrastructure, any overlap with other offshore wind farms and the Project is limited to export cable crossings, which is outlined in **Section 18.6.1.1** and discussed in **Section 18.7.1.1**.
105. Crossing and proximity agreements will determine how cable crossings are enabled and outline the proximity arrangements of operation activities for the existing subsea cables. The resultant locations, design and operation methodologies will reduce the physical impact upon other offshore wind export cables which may affect their operation.

106. All commercial and technical agreements required would be put in place ahead of the commencement of construction. Crossing and proximity agreements would be agreed post-consent during the Project's design period as discussed in **Section 18.7.1.1**.
107. Engagement with external stakeholders and the promulgation of information regarding planned vessel activities for the Project will allow for collaboration with other wind farm developers in the use of nearby port facilities, thereby reducing the pressure on their capacity.
108. Overall, the impact magnitude in relation to infrastructure overlap with other wind farms is considered to be **negligible**.
109. The wake effect arises due to the presence of wind turbines which alter and reduce wind energy downwind of the turbines. Wake losses can extend some distance, with far field effects recorded up to 45km (Platis *et al.*, 2018) and further. However, wake losses are not just linked to distance, with other variables contributing, modelling is typically required in order to fully understand context-specific potential for wake effects to occur. Wind losses induced by the wake effect have the potential to reduce the efficiency of proximal wind farms and result in decrease in Annual Energy Production (AEP).
110. The approach to wake effect assessment and the potential mitigation of any impacts is currently under review by the UK Government, as confirmed in the Clean Power 2030 Action Plan. There is no settled position at the time of PEIR publication as to how wake effect should be approached from an assessment perspective. This lack of general consensus extends to key definitions, such as what distance between projects constitutes "close" such that an assessment is required.
111. At the time of this PEIR publication, a final government position/ guidance on wake effects was imminently expected. Whilst it is the view of the Project that any potential impacts on other wind farms from wake effect should be assessed and form part of the planning process, pending the confirmation of a settled position on approach, it is not considered practicable to complete a meaningful assessment, or provide an expected magnitude of impact, at this preliminary stage. Doing so runs the risk of resulting in an immediately outdated and potentially confusing assessment, resulting in no/ limited potential for meaningful stakeholder feedback on the topic.
112. Instead, the Project will look to complete a detailed assessment on the likely significant effects of wake effects on other wind farms at ES stage, based on, and subject to, the settled government position/ guidance.

18.7.2.1.3 Effect Significance

113. In relation to disturbance to other wind farms from the overlap of infrastructure, it is predicted that the sensitivity of the receptor is **high** and the magnitude of impact is **negligible**. The effect is therefore of **minor adverse** significance which is **not significant** in EIA terms.

18.7.2.1.4 Additional Mitigation and Residual Effect

114. No additional mitigation is considered to be required for these effects.

18.7.2.2 Potential Interference with Oil and Gas Activities (OMU-O-02)

115. Interference of the Project with oil and gas activities during operation that are assessed in this chapter could arise from the following:

- Infrastructure overlap (e.g. cable crossings).

116. Issues arising from shipping and navigation and aviation are assessed in **Chapter 15 Shipping and Navigation** and **Chapter 16 Aviation and Radar**, respectively, and are not considered further in this chapter.

18.7.2.2.1 Receptor Sensitivity

117. Due to the high commercial value, and potentially fragile nature of infrastructure associated with oil and gas activities, such as pipelines, the sensitivity of oil and gas to interference from infrastructure overlap (such as any requirement for cable crossings) is considered to be **high**.

18.7.2.2.2 Impact Magnitude

118. In terms of infrastructure, any overlap with oil and gas activities and the Project is limited to pipeline crossings, which is outlined in **Section 18.6.1.2** and discussed in **Section 18.7.1.2**.
119. Crossing and proximity agreements will determine how pipeline crossings are enabled and outline the proximity arrangements of operation activities for the existing subsea pipelines. The resultant locations, design and operation methodologies will reduce the physical impact upon oil and gas pipelines which may affect their operation.
120. All commercial and technical agreements required would be put in place ahead of the commencement of construction. Crossing and proximity agreements would be agreed post-consent during the Project's design period as discussed in **Section 18.7.1.1**.

121. Engagement with external stakeholders and the promulgation of information regarding planned vessel activities for the Project will allow for collaboration with oil and gas developers in the use of nearby port facilities, thereby reducing the pressure on their capacity.

18.7.2.2.3 Effect Significance

122. In relation to disturbance to other marine users from the overlap of infrastructure, it is predicted that the sensitivity of the receptor is **high** and the magnitude of impact is **negligible**. The effect is therefore of **minor adverse** significance which is **not significant** in EIA terms.

18.7.2.2.4 Additional Mitigation and Residual Effect

123. No additional mitigation is considered to be required for these effects.

18.7.2.3 Physical Impacts on Sub-Sea Cables and Pipelines (OMU-O-03)

124. Wind farm operation activities (such as cable and foundation maintenance and vessel anchoring) have the potential to cause damage to the other subsea cables in close proximity. This includes the subsea cables discussed in **Section 18.6.1.3** that route through the Project's offshore ECC. Any damage caused to subsea cables would be expensive to repair and could disrupt the telecommunications or power supply of the subsea cable operations.

18.7.2.3.1 Receptor Sensitivity

125. A worst-case scenario is assumed as being accidental damage to a subsea cable or pipeline resulting from the wind farm construction activities, reduce the cable or pipeline capacity, or make the cable or pipeline operation redundant. It is therefore considered that the sensitivity of the receptor is **high**. Although this is based on a construction scenario, this is considered the worst-case and is therefore also used for the operation and maintenance phase of the project.

18.7.2.3.2 Impact Magnitude

126. The impact magnitude is considered to have the same (although to a lesser degree) likelihood as that discussed for construction (see **Section 18.7.1.3**). Therefore, the impact magnitude during the operation and maintenance phase is also considered to be **negligible**.

18.7.2.3.3 Effect Significance

127. Overall, it is predicted that the sensitivity of the receptor is **high** and the magnitude of impact is **negligible**. The effect is therefore of **minor adverse** significance, which is **not significant** in EIA terms.

18.7.2.3.4 Additional Mitigation and Residual Effect

128. No additional mitigation is considered to be required for this effect.

18.7.2.4 Impacts on Carbon Capture and Storage Sites (OMU-O-04)

129. Wind farm operation and maintenance activities have the potential to interfere with CCS operations in the following capacity:

- Overlap of infrastructure and potential interactions during operational activities.

18.7.2.4.1 Receptor Sensitivity

130. Wind farm operational activities have the potential to interfere with the activities of nearby CCS operations. Any potential disruption caused to other CCS operations could impact the Project's operational schedule. The sensitivity of CCS infrastructure to interference is deemed to have a **medium** sensitivity.

18.7.2.4.2 Impact Magnitude

131. As detailed in **Section 18.6.1.4**, there are no active CCS projects within the Project Array Area. The only interaction between the Project and CCS infrastructure will be the potential crossing of pipelines that run through the Offshore ECC.

132. The crossing and proximity agreements will determine how pipeline crossings are enabled and outline the proximity arrangements of construction activities to the existing pipelines. The resultant locations, design and operational methodologies will aim to reduce the physical impact upon other pipelines which may affect their operation.

133. The precise number of pipeline crossings is not yet known as the Offshore ECC will be determined post consent, though those within the Offshore ECC are considered in this assessment or the CEA.

134. Engagement with external stakeholders and the promulgation of information regarding planned vessel activities for the Project will allow for collaboration with CCS companies in the use of nearby port facilities, therefore reducing the pressure on their capacity.

135. Taking into account the embedded mitigation measures outlined in **Section 18.4.3**, including advance promulgation of information regarding activities related to the Project and ensuring the marking and lighting of related infrastructure is done in consideration of CCS assets, the magnitude of impact will be **negligible**.

18.7.2.4.3 Effect Significance

136. Overall, it is predicted that the sensitivity of the receptor is **high** and the magnitude of impact is **negligible**. The effect is therefore of **minor adverse** significance, which is **not significant** in EIA terms.

18.7.2.4.4 Additional Mitigation and Residual Effect

137. No additional mitigation is considered to be required for this effect.

18.7.3 Potential Effects during Decommissioning

138. No decision has been made regarding the final decommissioning strategy for the offshore infrastructure, as it is recognised that regulatory requirements and industry best practice change over time.

139. Commitment ID CO21 (see **Volume 2, Appendix 6.3 Commitments Register**) requires an Offshore Decommissioning Programme to be prepared and agreed with the relevant authorities prior to the commencement of offshore decommissioning works. This will ensure that decommissioning other marine users impacts will be assessed in accordance with the applicable regulations and guidance at that time of decommissioning where relevant, with appropriate mitigation implemented as necessary to avoid significant effects.

140. The detailed activities and methodology for decommissioning will be determined later within the Project's lifetime, but would be expected to include:

- Removal of all the wind turbine components and part of the foundations (those above seabed level);
- Removal of some or all of the array and export cables; and
- The inter-array and offshore export cables will likely be cut at the cable ends and left in-situ below the seabed, and scour and cable protection would likely be left in-situ other than where there is a specific condition for its removal.

141. Whilst a detailed assessment of decommissioning impacts cannot be undertaken at this stage, for this assessment, it is assumed that decommissioning is likely to operate within the parameters identified for construction (i.e. any activities are likely to occur within the temporary construction working areas and require no greater amount or duration of activity than assessed for construction). The decommissioning sequence will generally be the reverse of the construction sequence. It is therefore assumed that decommissioning impacts would likely be of similar nature to, and no worse than, those identified during the construction phase.

142. The magnitude of decommissioning effects will be comparable to, or less than, those as assessed during the construction phase. Accordingly, other marine user receptors during the construction phases, it is anticipated that the same would be valid for the decommissioning phase regardless of the final decommissioning methodologies. Therefore, all would be considered as **not significant** in EIA terms.

143. The same potential impacts noted for construction are therefore expected to have the same significance outcome as discussed in **Section 18.7.1.1** to **Section 18.7.1.4**.

18.7.4 Additional Mitigation Measures

144. As no significant effects have been concluded, no additional mitigation measures have been identified other than the embedded mitigation measures presented in **Table 18-3**.

18.8 Cumulative Effects

145. Cumulative effects are the result of the impacts of the Project acting in combination with the impacts of other proposed and reasonably foreseeable developments on receptors. This includes plans and projects that are not inherently considered as part of the current baseline.
146. The overarching framework used to identify and assess cumulative effects is set out in **Chapter 6 Environmental Impact Assessment Methodology**. The four-stage approach is based upon the Planning Inspectorate Advice Note Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment (Planning Inspectorate, 2024) and the Offshore Wind Marine Environmental Assessments: Best Practice Advance for Evidence and Data Standards (Parker *et al.*, 2022). The fourth stage of the process is the assessment stage, which is detailed within the sections below for potential cumulative effects on other marine users receptors.

18.8.1 Screening for Potential Cumulative Effects

The first step of the CEA identifies which impacts associated with the Project alone, as assessed under **Section 18.7**, have the potential to interact with other plans and projects to give rise to cumulative effects. All potential cumulative effects to be taken forward in the CEA are detailed in **Table 18-12** with a rationale for screening in or out. Only impacts determined to have a residual effect of negligible or greater are included in the CEA. Those assessed as ‘no impact’ are excluded, as there is no potential for them to contribute to a cumulative effect.

Table 18-12 Other Marine Users – Potential Cumulative Effects

Impact ID	Impact and Project Activity	Potential for Cumulative Effects	Rationale
OMU-C-01 OMU-O-01 OMU-D-01	Potential interference with other wind farms from the general development of the Project.	Yes	Plans and projects currently in planning have potential to have cumulative effects on existing offshore wind farms, such as wind wake / productivity losses.

Impact ID	Impact and Project Activity	Potential for Cumulative Effects	Rationale
OMU-C-02 OMU-O-02 OMU-D-02	Potential interference with oil and gas activities from the general development of the Project.	Yes	Plans and projects currently in planning have potential to have cumulative effects on existing oil and gas infrastructure, such as a reduction in available operational area.
OMU-C-03 OMU-O-03 OMU-D-03	Physical impacts on subsea cables and pipelines from the general development of the Project.	Yes	Plans and projects currently in planning have potential to have cumulative effects on existing subsea cables and pipelines, such as an increase in the number of required crossings.
OMU-C-04 OMU-O-04 OMU-D-04	Impacts on CCS sites from the general development of the Project.	Yes	Plans and projects currently in planning have potential to have cumulative effects on existing proposed CCS projects, such as a reduction in available operational area.

18.8.2 Screening for Other Plans / Projects

147. The second step of the CEA identifies a short-list of other plans and projects that have the potential to interact with the Project to give rise to significant cumulative effects during the construction and operation and maintenance phases. The short-list provided in **Table 18-13** has been produced specifically to assess cumulative effects on other marine users receptors. The exhaustive list of all offshore plans and projects considered in the development of the Project’s CEA framework is provided in **Volume 2, Appendix 6.2 Impacts Register / Appendix 6.3 Commitments Register**.
148. Developments that were fully operational and those not in use during baseline characterisation are considered as part of baseline conditions for the surrounding environment. It is assumed that any residual effects associated with these developments are captured within the baseline information. As such, these developments are not subject to further assessment within the CEA and excluded from the screening exercise presented in **Table 18-13**.
149. For developments that were not fully operational, including those in planning / pre-construction stages or under construction, during baseline characterisation and operational developments with potential for ongoing impacts, these are included in the screening exercise presented in **Table 18-13** with projects shown in **Figure 18-1**.

Table 18-13 Short List of Plans / Projects for the Other Marine Users Cumulative Effect Assessment

Project / Plan	Development Type	Status	Tier	Construction Period	Closest Distance to Array Area (km)	Closest Distance to Offshore ECC (km)	Potential for Significant Cumulative Effects	Rationale
East Inshore and Offshore Marine Plan, and North East Inshore and Offshore Marine Plan	Strategic Plans	-	7	-	Within Offshore Development Area.		No	Although there is an overlap spatially, these are plans and therefore part of the underlying planning regime and baseline.
Dogger Bank A (EN010021)	Offshore Wind Farm	Under construction	2	2024	42.85	Overlap	Yes	There is a spatial and temporal overlap with the offshore ECC and DBD Array Area.
Dogger Bank B (EN010021)			2	2024 - 2025	Over 50			There is a spatial and temporal overlap with the offshore ECC.
Sofia (EN010051)			2	2024 – 2026	17.75			There is a spatial and temporal overlap with the offshore ECC and DBD Array Area.
Dogger Bank C			2	2024 - 2026	Adjacent			
Hornsea Project Four (EN010098)		Consented	3	2025 - 2029	Over 50			There is a spatial and temporal overlap with the offshore ECC.
Dogger Bank South (EN010125)		Pre-planning	6	2026 - 2032	Over 50			
Ossian (EN0210006)			6	Unknown	Over 50		No	Although there is a spatial overlap with the offshore ECC, the construction period is not yet known and therefore considered to fall outside of the Project's construction period.
Breagh Platform to shore	Oil and Gas pipeline	Active	1	-	Over 50	24.08	No	Although there is a spatial overlap, the pipeline is already active and therefore part of the baseline.
Shearwater to Bacton Seal pipeline		Active	1	-	Over 50	Overlap		
Apollo to Minerva		Active	1	-	Over 50	27.10		
Eris to Mercury		Active	1	-	Over 50	35.98		
Esmond to Bacton		Active	1	-	Over 50	28.93		
Kilmar routes		Active	1	-	Over 50	24.46		
Johnston routes		Active	1	-	Over 50	41.21		

Project / Plan	Development Type	Status	Tier	Construction Period	Closest Distance to Array Area (km)	Closest Distance to Offshore ECC (km)	Potential for Significant Cumulative Effects	Rationale
Johnston Field Extension		Active	1	-	Over 50	47.45		
Langede to Easington		Active	1	-	Over 50	Overlap		
Mercury to Neptune		Active	1	-	Over 50	31.11		
Easington to Tolmount		Active	1	-	Over 50	13.06		
Cleeton routes		Active	1	-	Over 50	10.30		
Ravenspurn routes		Active	1	-	Over 50	24.35		
Rough routes		Active	1	-	Over 50	29.22		
West Sole to Easington		Active	1	-	Over 50	38.62		
Wollaston to Whittle		Active	1	-	Over 50	7.34		
York to Easington		Active	1	-	Over 50	24.48		
Northern Endurance CCS (D/4271/2021)	CCS	In planning	4	2026 – 2029	Over 50	Overlap	Yes	There is a spatial and temporal overlap with the offshore ECC.
UK-Denmark 4	Subsea cables	Inactive	0	-	43		No	Although there is a spatial overlap, the cable is inactive.
UK-Germany 6		Inactive	0	-	38		No	Although there is a spatial overlap, the cable is inactive.
Havhingsten 2.1		Active	1	-	Over 50		No	Although there is a spatial overlap, the cable is already active and therefore part of the baseline.
North Sea Connect		Active	1	-	Over 50			
Pangea North		Active	1	-	Over 50		No	Although there is a spatial overlap, the cable is already active and therefore part of the baseline.
TATA North Europe		Active	1	-	13			
Eastern Green Link (EGL 3) (EN0210003)		In planning	6	Unknown	Over 50		No	Although there is a spatial overlap with the offshore ECC, the construction period is not yet known and therefore considered to fall outside of the Project’s construction period.
Eastern Green Link (EGL 4) (EN0210003)		In planning	6	Unknown	Over 50			

150. The screening exercise has been undertaken based on available information on each plan or project as of 31st December 2024. Information has been obtained from the sources discussed in **Section 18.5.1**. It is noted that further information regarding the identified plans and projects may become available between PEIR publication and DCO application submission or may not be available in detail prior to construction. The assessment presented here is therefore considered to be conservative at the time of PEIR publication. The list of plans and projects will be updated at ES stage to incorporate more recent information at the time of writing.
151. Plans and projects identified in **Table 18-13** have been assigned a tier based on their development status, the level of information available to inform the CEA and the degree of confidence. A seven-tier system based on the guidance issued by Natural England and the Department of Environmental, Food and Rural Affairs (Defra) has been adopted (Parker *et al.*, 2022).
152. A high-level list of plans / projects that may result in cumulative effects with the Project is detailed in **Table 18-13**. For other marine users, the same search distance buffer of 50km from the DBD Array Area and no buffer for the offshore ECC has been used to determine the initial list of projects considered for the CEA.
153. In addition to other offshore wind farms, the classes of projects that could potentially be considered for the cumulative assessment of other marine users includes:
- Marine aggregate extraction;
 - Oil and gas exploration and extraction;
 - Subsea cables and pipelines; and
 - Commercial shipping.
154. Each plan or project in **Table 18-13** has been considered on a case-by-case basis. Only plans and projects with potential for significant cumulative effects with the Project are taken forward to a detailed assessment, which are screened based on the following criteria:
- There is potential that a pathway exists whereby an impact could have a cumulative effect on a receptor;
 - The impact on a receptor from the Project and the plan or project in consideration has a spatial overlap (i.e. occurring over the same area);
 - The impact on a receptor from the Project and the plan or project in consideration has a temporal overlap (e.g. occurring at the same time);
 - There is sufficient information available on the plan or project in consideration and moderate to high data confidence to undertake a meaningful assessment; and

- There is some likelihood that the residual effect (i.e. after accounting for mitigation measures) of the Project could result in significant cumulative effects with the plan or project in consideration.

155. The CEA for other marine users has identified a total of seven plans and projects where significant cumulative effects could arise in combination with the Project. A detailed assessment of cumulative effects is provided in the section below.

18.8.3 Assessment of Cumulative Effects

156. Having established the effect significance of the Project with the potential for cumulative effects, along with the other relevant plans, projects and activities, the following sections provide an assessment of the level of impact that may arise.

18.8.3.1 Cumulative Impact 1: Potential Interference with Other Wind Farms

157. The effect significance from the Project's potential interference with other wind farms is assessed as **minor adverse** in relation to the construction, operation and decommissioning phases (see **Section 18.7.1**, **Section 18.7.2.1** and **Section 18.7.3**) with no additional mitigation required. Considering the embedded mitigation detailed in **Table 18-3** any cumulative impacts with other wind farms will remain as **minor adverse** during all stages of the Project, whereby other projects and activities would similarly be expected to adhere to restrictions, mitigation and avoidance measures and ongoing consultation across asset owners and managers. Note that as per **Section 18.7.2** above, any potential cumulative impacts associated with wake effects will be considered and assessed as needed at ES stage.

18.8.3.2 Cumulative Impact 2: Impacts on Carbon Capture and Storage Sites

158. The effect significance from the Project's impacts on CCS sites is assessed as **minor adverse** in relation to the construction, operation and decommissioning phases (see **Section 18.7.1.4**, **Section 18.7.2.4** and **Section 18.7.3**) with no additional mitigation required. Considering the embedded mitigation detailed in **Table 18-3**, any cumulative impacts with other wind farms will remain as **minor adverse** during all stages on the Project.

18.9 Transboundary Effects

159. This chapter has considered the potential for transboundary effects (effects across international boundaries) to occur on other marine users as a result of the construction, operation and decommissioning of the Project.
160. The assessment of transboundary effects has been informed through the impacts assessment in this chapter (**Section 18.7.1** to **Section 18.7.3**). These have been identified in relation to:
- Offshore wind farms (**minor adverse**);
 - Carbon capture and storage (**minor adverse**);
 - Oil and gas activity (**minor adverse**);
 - Aggregate extraction (**no effect** as none present within the ODA); and
 - Subsea telecommunication cables and pipelines (**minor adverse**).
161. There are no other offshore wind farms within the other marine users Study Area, with the closest being the development zone of N-19 (ID: DE40) within German waters, which sits approximately 60km away from the Project’s Array Area. It is considered that because of the distance of these developments from the Project there would be no impact as a result of construction, operation and decommissioning.
162. The Project’s Array Area lies adjacent to the boundary with another EEA state (the Netherlands). The Dutch oil and gas exploration blocks and their distance to the Project are laid out in **Table 18-14**. It is not anticipated that the potential impacts identified above will occur over a large enough area to affect receptors within the Netherlands or German boundary, except for piling noise interacting with seismic surveys within these blocks. The Applicant is involved in on-going consultation with the developers of these exploration blocks to ensure there will be minimal interaction between piling noise and seismic survey activity.
163. Although no subsea cables or pipelines cross the DBD Array Area, the offshore ECC is crossing both cables and pipelines. Some of these are owned by, originate in, or terminate, in another EEA state. Since these are of international importance and of high sensitivity the financial implications of damage could be large for another EEA state. The Applicant is in on-going consultation with potentially affected EEA operators to develop a series of mitigation measures such as crossings and proximity agreements. This will reduce the magnitude of the effect to **negligible**. The resulting residual impact is anticipated to be **minor adverse**. No other transboundary effect are however identified for any stage of the project.

Table 18-14 Transboundary Exploration Blocks and their Distance to the Project

Exploration Block (all Dutch)	Distance to the Project (km)
A18b	36
A18a	38
A18c	46
A15a	44
A12a	45
E03a	46
E06a	50
D12a	50

18.10 Inter-relationships and Effect Interactions

18.10.1 Inter-Relationships

164. Inter-relationships are defined as effects arising from residual effects associated with different environmental topics acting together upon a single receptor or receptor group. Potential inter-relationships between other marine users and other environmental topics have been considered, where relevant, within the PEIR. **Table 18-15** provides a summary of key inter-relationships and signposts to where they have been addressed in the relevant chapters.

Table 18-15 Other Marine Users – Inter-Relationships with Other Topics

Impact ID	Impact and Project Activity	Related EIA Topic	Where Assessed in the PEIR Chapter	Rationale
Construction, Operation and Decommissioning				
OMU-C-01 OMU-O-01 OMU-D-01	Potential interference with other wind farms in relation to the shipping associated with the Project.	Chapter 15 Shipping and Navigation	Section 15.6, Section 15.7, Section 15.8, and Section 15.9	The presence of the Project’s construction and operation vessels, and installation of offshore infrastructure has the potential to be a navigational hazard to shipping associated with other offshore wind farms. This may result in the diversion of vessels when in transit.
OMU-C-02 OMU-O-02 OMU-D-02	Potential interference with oil and gas activities in relation to the shipping associated with the Project.	Chapter 15 Shipping and Navigation	Section 15.6, Section 15.7, Section 15.8, and Section 15.9	The presence of the Project’s construction and operation vessels, and installation of offshore infrastructure has the potential to be a navigational hazard to shipping associated with Oil and Gas operations. This may result in the diversion of vessels when in transit.
OMU-C-07 OMU-O-07 OMU-D-07	Potential interaction with MOD activities relating to aviation associated with the Project.	Chapter 16 Aviation, Radar and Military	Scoped out and not assessed here	The presence of the Project’s vessels and infrastructure has the potential to be a hazard to the RAF Danger Areas for Air Combat Training and High Energy Manoeuvres between 5,000 ft and 66,000 ft.

18.10.2 Interactions

165. The impacts identified and assessed in this chapter have the potential to interact with each other. Potential interactions between impacts are identified in **Table 18-16**, with the methodology as described in **Chapter 6 Environmental Impact Assessment Methodology**. Where there is potential for interaction between impacts, these are assessed in **Table 18-17** for each receptor or receptor group.
166. Interactions are assessed by development phase (“phase assessment”) to see if multiple impacts could increase the overall effect significance experienced by a single receptor or receptor group during each phase. Following from this, a lifetime assessment is undertaken which considers the potential for multiple impacts to accumulate across the construction, operation and decommissioning phases and result in a greater effect on a single receptor or receptor group. When considering synergistic effects from interactions, it is assumed that the receptor sensitivity remains consistent, while the magnitude of different impacts is additive.

18.11 Monitoring Measures

167. The potential for monitoring measures regarding other marine users is not anticipated following the assessment. However, if any measures are required it will be developed through the EIA process and informed through consultation, with a reassessment prior to application.

Table 18-16 Other Marine Users – Potential Interactions between Impacts

Construction and Operation and Maintenance								
	OMU-C-01	OMU-C-02	OMU-C-03	OMU-C-04	OMU-O-01	OMU-O-02	OMU-O-03	OMU-O-04
Potential interference with other wind farms (OMU-C-01)		No	No	No	No	No	No	No
Potential interference with oil and gas activities (OMU-C-02)	No		No	No	No	No	No	No
Physical impacts on subsea cables and pipelines (OMU-C-03)	No	No		No	No	No	No	No
Impacts on Carbon Capture and Storage (CCS) sites (OMU-C-04)	No	No	No		No	No	No	No
Potential interference with other wind farms (OMU-O-01)	No	No	No	No		No	No	No
Potential interference with oil and gas activities (OMU-O-02)	No	No	No	No	No		No	No
Physical impacts on subsea cables and pipelines (OMU-O-03)	No	No	No	No	No	No		No
Impacts on Carbon Capture and Storage (CCS) sites (OMU-O-04)	No	No	No	No	No	No	No	
Decommissioning								
The details and scope of offshore decommissioning works will be determined by the relevant regulations and guidance at the time of decommissioning and provided in the Offshore Decommissioning Programme (see Commitment ID CO21, Volume 2, Appendix 6.3 Commitments Register).								
For this assessment, it is assumed that interactions during the decommissioning phase would be of similar nature to, and no worse than, those identified during the construction phase.								

Table 18-17 Interaction Assessment – Phase and Lifetime Effects

Impact ID	Impact and Project Activity	Receptor	Highest Significance Level			Phase Assessment	Lifetime Assessment
			Construction	Operation	Decommissioning		
OMU-C-01 OMU-O-01 OMU-D-01	Potential interference with other wind farms - from general development of the Project.	Other wind farms	Minor Adverse	Minor Adverse	Minor Adverse	Construction: No greater than individually assessed impact. Operation and Maintenance: No greater than individually assessed impact. Decommissioning: No greater than individually assessed impact.	No greater than individually assessed impact.
OMU-C-02 OMU-O-02 OMU-D-02	Potential interference with oil and gas activities - from general development of the Project.	Oil and gas	Minor Adverse	Minor Adverse	Minor Adverse	Construction: No greater than individually assessed impact. Operation and Maintenance: No greater than individually assessed impact. Decommissioning: No greater than individually assessed impact.	No greater than individually assessed impact.
OMU-C-03 OMU-O-03 OMU-D-03	Physical impacts on subsea cables and pipelines - from general development of the Project.	Subsea cables and pipelines	Minor Adverse	Minor Adverse	Minor Adverse	Construction: No greater than individually assessed impact. Operation and Maintenance: No greater than individually assessed impact. Decommissioning: No greater than individually assessed impact.	No greater than individually assessed impact.
OMU-C-04 OMU-O-04 OMU-D-04	Impacts on CCS sites - from general development of the Project.	CCS sites	Minor Adverse	Minor Adverse	Minor Adverse	Construction: No greater than individually assessed impact. Operation and Maintenance: No greater than individually assessed impact. Decommissioning: No greater than individually assessed impact.	No greater than individually assessed impact.

18.12 Summary

168. This chapter has provided a characterisation of the baseline environment for other marine users based on existing public data, which enabled the identification of potential interactions between the Project and other nearby offshore wind farms, oil and gas infrastructure, carbon capture and storage sites, and subsea cables and pipeline activities.
169. The assessment determined that the sensitivity of other marine users receptors ranged from medium to high. Through the embedded and additional mitigation measures in-built into the Project Design Envelope (see **Table 18-3**), it was established that the magnitude of impact would be negligible in all instances.
170. All assessments in this chapter conclude that no significant effects on other marine users receptors are expected to occur. In addition, no significant cumulative or transboundary effects are anticipated as informed through the CEA and transboundary assessments.
171. **Table 18-18** presents a summary of the preliminary results of the assessment of likely significant effects on other marine users during the construction, operation and decommissioning of the Project.
172. No monitoring measures are anticipated.

18.13 Next Steps

173. The next steps in the EIA will be to:
- Review and update of data sources depending on any new sources produced during the submission of PEIR and the lead up to ES;
 - Update to assessment for ES depending on changes to project design; and
 - Ongoing consultation with other marine users (including transboundary).

Table 18-18 Summary of Potential Effects Assessed for Other Marine Users

Impact ID	Impact and Project Activity	Embedded Mitigation Measures	Receptor	Receptor Sensitivity	Impact Magnitude	Effect Significance	Additional Mitigation Measures	Residual Effect	Monitoring Measures
Construction									
OMU-C-01	Potential interference with other wind farms - from general development of the Project.	CO7, CO9, CO10, CO11, CO12, CO14, CO15, CO16, CO17, CO21, CO23, CO24, CO28, CO31	Other wind farms	High	Negligible	Minor adverse (not significant)	CO40	Minor adverse (not significant)	Not required
OMU-C-02	Potential interference with oil and gas activities - from general development of the Project.		Oil and gas	High	Negligible	Minor adverse (not significant)		Minor adverse (not significant)	Not required
OMU-C-03	Physical impacts on subsea cables and pipelines - from general development of the Project.		Subsea cables and pipelines	High	Negligible	Minor adverse (not significant)		Minor adverse (not significant)	Not required
OMU-C-04	Impacts on CCS sites - from general development of the Project.		CCS sites	High	Negligible	Minor adverse (not significant)		Minor adverse (not significant)	Not required
Operation and Maintenance									
OMU-O-01	Potential interference with other wind farms - from general development of the Project.	CO7, CO9, CO10, CO11, CO12, CO14, CO15, CO16, CO17, CO21, CO23, CO24, CO28, CO31	Other wind farms	High	Negligible	Minor adverse (not significant)	CO40	Minor adverse (not significant)	Not required
OMU-O-02	Potential interference with oil and gas activities - from general development of the Project.		Oil and gas	High	Negligible	Minor adverse (not significant)		Minor adverse (not significant)	Not required
OMU-O-03	Physical impacts on subsea cables and pipelines - from general development of the Project.		Subsea cables and pipelines	High	Negligible	Minor adverse (not significant)		Minor adverse (not significant)	Not required
OMU-O-04	Impacts on CCS sites - from general development of the Project.		CCS sites	High	Negligible	Minor adverse (not significant)		Minor adverse (not significant)	Not required

Impact ID	Impact and Project Activity	Embedded Mitigation Measures	Receptor	Receptor Sensitivity	Impact Magnitude	Effect Significance	Additional Mitigation Measures	Residual Effect	Monitoring Measures
Decommissioning									
OMU-D-01	Potential interference with other wind farms – decommissioning activities not yet defined.	CO21	<p>The details and scope of onshore decommissioning works will be determined by the relevant regulations and guidance at the time of decommissioning and provided in the Offshore Decommissioning Plan (Commitment ID CO21). This will include a detailed assessment of decommissioning impacts and appropriate mitigation measures to avoid significant effects.</p> <p>For assessment purposes, it is assumed that impacts during the decommissioning phase would be of similar nature to, and no worse than, those identified during the construction phase.</p>						
OMU-D-02	Potential interference with oil and gas activities – decommissioning activities not yet defined.								
OMU-D-03	Physical impacts on subsea cables and pipelines – decommissioning activities not yet defined.								
OMU-D-04	Impacts on CCS sites – decommissioning activities not yet defined.								

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List of Acronyms

Acronym	Definition
AEP	Annual Energy Production
CAA	Civil Aviation Authority
CCS	Carbon Capture and Storage
CEA	Cumulative Effects Assessment
DBA	Dogger Bank A Offshore Wind Farm
DBB	Dogger Bank B Offshore Wind Farm
DBC	Dogger Bank C Offshore Wind Farm
DBD	Dogger Bank D Offshore Wind Farm
DBS	Dogger Bank South
DCO	Development Consent Order
DESNZ	Department for Energy Security and Net Zero
ECC	Export Cable Corridor
EEA	European Economic Area
EEZ	European Economic Zone
EGL	Eastern Green Link
EIA	Environmental Impact Assessment
EPP	Evidence Plan Process
ERCoP	Emergency Response Cooperation Plan
ES	Environmental Statement
ESCA	European Subsea Cable UK Association
ETG	Expert Topic Group
EU	European Union

Acronym	Definition
FLCP	Fisheries Liaison and Co-existence Plan
FLO	Fisheries Liaison Officer
FLOWW	Fisheries Liaison with Offshore Wind and Wet
HRA	Habitats Regulations Assessment
ICPC	International Cable Protection Committee
IMO	International Maritime Organization
JNCC	Joint Nature Conservation Committee
MCA	Maritime Coastguard Agency
MLWS	Mean Low Water Springs
MMO	Marine Management Organisation
MOD	Ministry of Defence
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
NSTA	North Sea Transmission Authority
OP	Offshore Platform
PEIR	Preliminary Environmental Information Report
PEXA	Practice and Exercise Area
RAF	Royal Air Force
SAR	Search and Rescue
SIP	Site Integrity Plan
SOLAS	Safety of Life at Sea
TJB	Transition Joint Bays
UK	United Kingdom
UKHO	United Kingdom Hydrographic Office

Acronym	Definition
UXO	Unexploded Ordinance
VHF	Very High Frequency