

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

Preliminary Environmental Information Report

Volume 2, chapter 14: Other sea users



April 2023
FINAL

Image of an offshore wind farm

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Prepared for:

Morgan Offshore Wind Ltd.

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Glossary

Term	Meaning
Marine aggregate	Marine dredged sand and/or gravel.
Marine aggregate extraction	The process of removing naturally occurring sand and gravels.
Notice to Mariners	Issued from a number of different sources, such as the UK Hydrographic Office, Trinity House or Local Harbour Authorities. Contain important navigational information such as chart updates, changes in buoyage, prior warning of activities such as dredging, exclusion zones, harbour closures and byelaws etc.
Seismic survey	The technique involves releasing pulses of acoustic energy along designated lines, the energy penetrates the sub-surface rocks and is reflected back to the surface where it can be detected by acoustic transducers and relayed to a recording vessel.
Tidal excursion	The net horizontal distance travelled by a water particle from Mean Low Water Springs (MLWS) to Mean High Water Springs (MHWS) or vice versa.

Acronyms

Acronym	Description
AfL	Agreement for Lease
AIS	Automatic Identification System
BEIS	Department for Business, Energy and Industrial Strategy
CEA	Cumulative Effects Assessment
CTV	Crew Transfer Vessel
DCO	Development Consent Order
EIA	Environmental Impact Assessment
ES	Environmental Statement
HDD	Horizontal Directional Drilling
ICPC	International Cable Protection Committee
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
NRA	Navigational Risk Assessment
NSTA	North Sea Transition Authority
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
OSP	Offshore Substation Platform
OTNR	Offshore Transmission Network Review

Acronym	Description
PDE	Project Design Envelope
PEI	Preliminary Environmental Information
PEIR	Preliminary Environmental Information Report
REWS	Radar Early Warning Systems
RYA	Royal Yachting Association
SOV	Service Operation Vessel
SSC	Suspended Sediment Concentration
TCE	The Crown Estate
UKCS	United Kingdom Continental Shelf
UKHO	United Kingdom Hydrographic Office

Units

Unit	Description
%	Percentage
m	Metres
m ²	Square metres
m ³	Metres cubed
m/h	Metres per hour
MW	Megawatt
nm	Nautical mile
km	Kilometres
km ²	Square kilometres

14 Other sea users

14.1 Introduction

14.1.1 Overview

14.1.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents the assessment of the potential impact of the Morgan Offshore Wind Project Generation Assets (hereafter referred to as the Morgan Generation Assets) on other sea users. Specifically, this chapter considered the potential impact of the Morgan Generation Assets seaward of Mean High Water Springs (MHWS) during the construction, operations and maintenance, and decommissioning phases.

14.1.2 Purpose of chapter

14.1.2.1 The primary purpose of the PEIR is outlined in volume 1, chapter 1: Introduction of the PEIR. In summary, the primary purpose of an Environmental Statement is to support the Development Consent Order (DCO) application for the Morgan Generation Assets under the Planning Act 2008 (the 2008 Act). The PEIR constitutes the Preliminary Environmental Information (PEI) for the Morgan Generation Assets and sets out the findings of the Environmental Impact Assessment (EIA) to date to support the pre-application consultation activities required under the 2008 Act. The EIA will be finalised following completion of pre-application consultation and the Environmental Statement will accompany the application to the Secretary of State for Development Consent.

14.1.2.2 The PEIR forms the basis for statutory consultation which will last for 47 days and conclude on 4 June 2023, as outlined in volume 1, chapter 2: Policy and legislation of the PEIR. At this point, comments received on the PEIR will be reviewed and incorporated (where appropriate) into the Environmental Statement, which will be submitted in support of the application for Development Consent scheduled for quarter one of 2024.

14.1.2.3 In particular, this PEIR chapter:

- Presents the existing environmental baseline established from desk studies and consultation
- Identifies any assumptions and limitations encountered in compiling the environmental information
- Presents the potential environmental effects on other sea users arising from the Morgan Generation Assets, based on the information gathered and the analysis and assessments undertaken
- Highlights any necessary monitoring and/or mitigation measures which could prevent, minimise, reduce or offset the possible environmental effects of the Morgan Generation Assets on other sea users.

14.1.3 Study area

14.1.3.1 The other sea users study area varies in scale depending on the receptor. Two study areas have been defined for the assessment of different groupings of other sea user

receptors. These are the regional other sea users study area, and the local other sea users study area, as shown in Figure 14.1.

14.1.3.2 The regional other sea users study area is based on one tidal excursion of the Morgan Array Area and represents the area with potential increases in suspended sediments arising from activities associated with the Morgan Generation Assets. This study area is relevant to those receptors which are susceptible to increases in Suspended Sediment Concentration (SSC):

- Aggregate extraction and disposal sites
- Recreational activities such as scuba diving and bathing.

14.1.3.3 The local other sea users study area is defined as a 1km buffer around the Morgan Array Area. The 1km buffer has been included as oil and gas infrastructure, cables and pipelines and offshore wind farm structures undergoing maintenance will require a 500m safety zone, or advisory clearance distance. This area includes the extent of potential direct physical overlap between activities associated with the Morgan Generation Assets and the following receptors:

- Recreational activities including sailing and motor cruising, and recreational fishing
- Offshore energy projects (including other offshore wind farms, oil and gas activities and carbon capture and storage)
- Cable and pipeline operators
- Offshore microwave fixed communication links.

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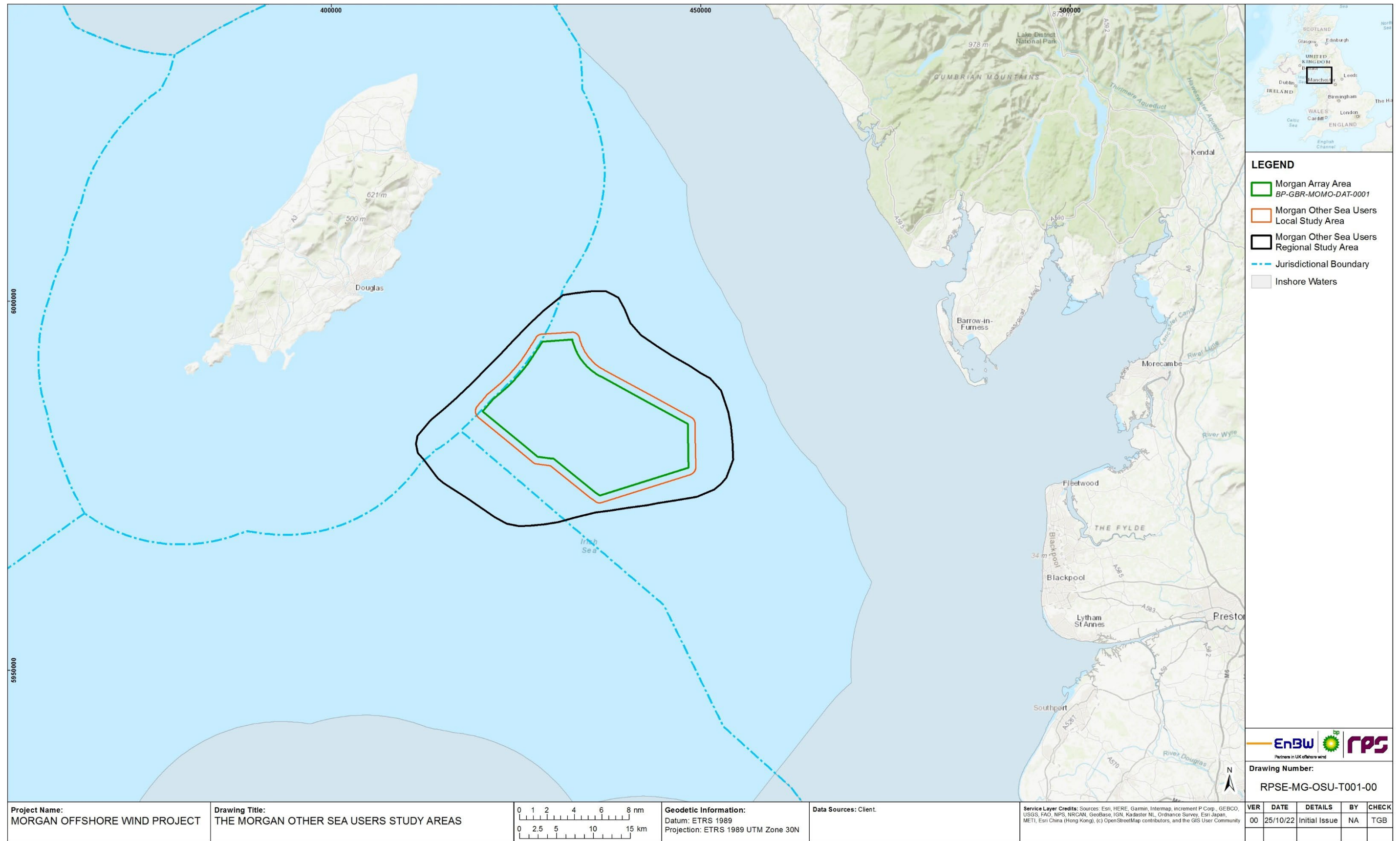


Figure 14.1: The other sea users study areas for the Morgan Generation Assets.

14.2 Policy context

14.2.1.1 The policy context for the Morgan Generation Assets is set out in volume 1, chapter 2: Policy and legislation of the PEIR. Specific policy relevant to other sea users, is laid out below.

14.2.1 National Policy Statements

14.2.1.1 Planning policy on renewable energy infrastructure is presented in volume 1, chapter 2: Policy and legislation of the PEIR. Planning policy on offshore renewable energy Nationally Significant Infrastructure Projects (NSIPs), specifically in relation to other sea users, is contained in the Overarching National Policy Statement (NPS) for Energy (EN-1; DECC, 2011a) and the NPS for Renewable Energy Infrastructure (EN-3, DECC, 2011b).

14.2.1.2 NPS EN-1 and NPS EN-3 include guidance on what matters are to be considered in the assessment. This is presented in Table 14.1 below. NPS EN-1 and NPS EN-3 also highlight a number of factors relating to the determination of an application and in relation to mitigation. These are presented in Table 14.2 below.

14.2.1.3 Table 14.1 and Table 14.2 refer to the current NPSs, specifically NPS EN-1 (DECC, 2011a) and NPS EN-3 (DECC, 2011b). If the NPSs are updated prior to the application for Development Consent, the revised NPSs will be fully considered in relation to other sea users within the Environmental Statement.

Table 14.1: Summary of the NPS EN-1 and NPS EN-3 provisions relevant to other sea users.

NPS EN-1 and EN-3 guidance	How and where considered in the PEIR
NPS EN-3	
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 or activities. (EN-3, paragraph 2.6.35)	An assessment of other offshore infrastructure and activities is presented in section 14.5. Consultation with potentially affected stakeholders has been carried out from the early stages of the Morgan Generation Assets and continues through the pre-application consultation process. Details of this are presented in Table 14.4.
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. (EN-3, paragraph 2.6.179)	The Morgan Generation Assets assessment has considered each of these potential effects and in section 14.8 has provided an assessment of their likely significance, considering each phase of the development process (i.e. construction, operations and decommissioning). Consideration of the North West Marine Plans is contained in section 14.2.2.

NPS EN-1 and EN-3 guidance	How and where considered in the PEIR
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Applicants should establish stakeholder engagement with interested parties in the offshore sector 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 to the IPC. Such stakeholder engagement should continue throughout the life of the 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 uses of the sea to successfully co-exist. (EN-3, paragraphs 2.6.180-2.6.181)	Consultation with potentially affected stakeholders has been carried out from the early stages of the Morgan Generation Assets and continues through the pre-application consultation process. Details of this are presented in Table 14.4.
As such, the IPC should be satisfied that the site selection and site design of the proposed offshore wind farm has been made with a view to avoiding or minimising disruption or economic loss or any adverse effect on safety to other offshore industries. The IPC should not consent applications which pose unacceptable risks to safety after mitigation measures have been considered. (EN-3, paragraph 2.6.184)	The Morgan Generation Assets have been sited to minimise disruption with other sea users, where possible. In cases where potential disruption has been highlighted by early consultation, the Morgan Generation Assets have, where appropriate and feasible, provided mitigation measures to reduce or negate impacts. This is discussed further within section 14.8. See also volume 1, chapter 4: Site selection and consideration of alternatives of the PEIR. See also the consultation undertaken to date and how the Morgan Generation Assets have considered it (Table 14.4).

Table 14.2: Summary of NPS EN-1 and NPS EN-3 policy on decision making relevant to other sea users.

NPS EN-1 and EN-3 policy	How and where considered in the PEIR
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NPS EN-3	
Where a proposed wind farm potentially affects other offshore infrastructure or activity, a pragmatic approach should be employed by the IPC. In such circumstances the IPC should expect the applicant to minimise negative impacts and reduce risks to as low as reasonably practicable. (EN-3, paragraph 2.6.183)	Section 14.8 describes the impact assessment undertaken for the Morgan Generation Assets, and section 14.7 identifies measures adopted to minimise negative impacts and reduce risks.
As such the IPC should be satisfied that the site selection and site design of the wind farm has been made with a view to avoiding or minimising disruption or economic loss or any adverse effects on safety to other offshore industries. The Secretary of State should not consent applications which pose unacceptable risks to safety after mitigation measures have been considered. (EN-3, paragraph 2.6.184)	As per volume 1, chapter 4: Site selection and consideration of alternatives of the PEIR, the Morgan Generation Assets have been sited to minimise conflicts with other sea users where possible. In cases where conflict has been highlighted through consultation (Table 14.4), mitigation measures have been proposed to reduce or negate impacts (section 14.8).

NPS EN-1 and EN-3 policy	How and where considered in the PEIR
Providing proposed schemes have been carefully designed and the necessary consultation has been undertaken at an early stage, mitigation measures may be possible to negate or reduce effects on other offshore infrastructure or operations to a level sufficient to enable the IPC to grant consent. (EN-3, paragraph 2.6.186)	
Detailed discussions between the applicant for the offshore wind farm and the relevant consultees should have progressed as far as reasonably possible prior to the submission of an application to the IPC. As such, appropriate mitigation should be included in any application to the IPC and ideally agreed between relevant parties. (EN-3, paragraph 2.6.187)	As per volume 1, chapter 4: Site selection and consideration of alternatives of the PEIR, the Morgan Generation Assets have been sited to minimise conflicts with other sea users where possible. In cases where conflict has been highlighted through consultation (Table 14.4), mitigation measures have been proposed to reduce or negate impacts (section 14.7).
In some circumstances, the IPC may wish to consider the potential to use requirements involving arbitration as a means of resolving how adverse impacts on other commercial activities will be addressed. (EN-3, paragraph 2.6.188)	

14.2.2 North West Inshore and North West Offshore Coast Marine Plans

14.2.2.1 The assessment of potential changes to other sea users has also been made with consideration to the specific policies set out in the North West Inshore and North West Offshore Coast Marine Plans (MMO, 2021). Key provisions are set out in Table 14.3 along with details as to how these have been addressed within the assessment.

Table 14.3: North West Inshore and North West Offshore Marine Plan policies of relevance to other sea users.

Policy	Key provisions	How and where considered in the PEIR
NW-AGG-1	Proposals in areas where a licence for extraction of aggregates has been granted or formally applied for should not be authorised, unless it is demonstrated that the proposal is compatible with aggregate extraction.	As shown in Figure 14.2, there is no overlap between the Morgan Generation Assets and any marine aggregate extraction sites.

Policy	Key provisions	How and where considered in the PEIR
NW-CO-1	Proposals that may have significant adverse impacts on, or displace, existing activities must demonstrate that they will, in order of preference: <ul style="list-style-type: none"> Avoid Minimise Mitigate adverse impacts so they are no longer significant. If it is not possible to mitigate significant adverse impacts, proposals must state the case for proceeding.	Measures adopted as part of the Morgan Generation Assets (with relevance to other sea users) are contained in section 14.7, and an assessment of impacts is contained in section 14.8.
NW-CAB-1	Preference should be given to proposals for cable installation where the method of protection is burial. Where burial is not achievable, decisions should take account of protection measures for the cable that may be proposed by the applicant. Where burial or protection measures are not appropriate, proposals should state the case for proceeding without those measures.	Cable burial is one of the measures adopted as part of the Morgan Generation Assets listed in section 14.7.
NW-CAB-3	Where seeking to locate close to existing subsea cables, proposals should demonstrate compatibility with ongoing function, maintenance and decommissioning activities relating to the cable.	Cable crossing and proximity agreements are measures adopted as part of the Morgan Generation Assets listed in section 14.7.
NW-OG-1	Proposals in areas where a licence for oil and gas has been granted or formally applied for should not be authorised unless it is demonstrated that the other development or activity is compatible with the oil and gas activity.	Impacts upon oil and gas licence blocks are considered within section 14.8.

14.3 Consultation

14.3.1.1 A summary of the key issues raised during consultation activities undertaken to date specific to other sea users is presented in Table 14.4 below, together with how these issues have been considered in the production of this PEIR chapter.

Table 14.4: Summary of key consultation issues raised during consultation activities undertaken for the Morgan Generation Assets relevant to other sea users.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or were considered in this chapter
20 April 2022	Spirit Energy response to initial invitation to comment	<ul style="list-style-type: none"> Anticipation of pipeline, cable crossing and/or proximity agreements to be established Notification of the potential of the construction and placement of wind turbines to effect Radar Early Warning Systems (REWS) effectiveness for collision risk management, and the ability of REWS to detect vessels. 	<ul style="list-style-type: none"> Crossing and proximity agreements are noted as measures adopted as part of the Morgan Generation Assets in Table 14.11 Impact on REWS addressed in section 14.8.5.
10 June 2022	Carl Davies, stakeholder – Response to Scoping Report	Queried the representation of the charter angling boat industry at meetings up to February 2022 and enquired as to the final date for public consultation.	Confirmed that consultation on the Scoping Report represented only the first stage and did not preclude wider consultation. Notified the stakeholder of a series of consultation events through June and July 2022 and that the Applicant was in the process of developing a more targeted stakeholder engagement plan.
17 August 2022	Isle of Man Department of Infrastructure in the Planning Inspectorate Scoping Opinion	Notification of the presence of an Ørsted proposed offshore wind farm with an Agreement for Lease (AfL) in place, within Isle of Man territorial waters.	This proposed offshore wind farm has been acknowledged in section 0 and Table 14.6.
17 August 2022	Isle of Man Department of Infrastructure in the Planning Inspectorate Scoping Opinion	Notification for the purpose of transparency of Manx Utilities plans relating to a second interconnector cable for the Isle of Man, planned to run to the north of the Morgan Generation Assets.	Details on the second interconnector cable are currently unavailable. When more is known about the location and scope of this project, it will be included in the Environmental Statement.
21 November 2022	RWE response to pre-consultation questionnaire	Information on Awel y Môr, including proposed activities, cables and future vessel access requirements.	Offshore wind farms are considered in the baseline environment description (section 0).
24 November 2022	Spirit Energy response to pre-consultation questionnaire	Information on assets in the east Irish Sea and future activity.	Oil and gas receptors are described in the baseline environment description (section 0).
24 November 2022	Harbour Energy response to pre-consultation questionnaire	Information on assets in the east Irish Sea and future activity.	Oil and gas receptors are described in the baseline environment description (section 0).
25 November 2022	Rhyl Charter Anglers meeting to discuss impacts of the Morgan Generation Assets and the Mona Offshore Wind Project on charter angling	Discussion of fishing within the Morgan and Mona Array Areas, and impacts of previously constructed wind farms in the Irish Sea (e.g. North Hoyle, Gwynt y Môr, Burbo Bank and Rhyl Flats) on charter angling.	Charter anglers expressed that it was unlikely that any fishing would occur within either the Morgan or Mona Array Area, especially during construction. Impacts on recreational activities, including recreational fishing, are considered in section 14.8.2.
08 December 2022	ENI response to pre-consultation questionnaire	Information on assets in the east Irish Sea and future activity.	Oil and gas receptors are described in the baseline environment description (section 0).

14.4 Baseline environment

14.4.1 Desktop study

14.4.1.1 Information on other sea users within the other sea users study areas was collected through a detailed desktop review of existing studies and datasets. These are summarised in Table 14.5 below.

Table 14.5: Summary of key desktop reports.

Title	Source	Year	Author
Cable routes	Kis-Orca	2021	Kis-Orca
Disposal sites	EMODnet	2015	EMODnet
Offshore wind farms	The Crown Estate (TCE)	2022	TCE
Recipients of oil and gas questionnaire	TCE conflicts check	2021	TCE
Aggregate extraction areas	TCE	2022	TCE
Pipelines	North Sea Transition Authority (NSTA)	2022	NSTA
Wells	NSTA	2022	NSTA
Hydrocarbon platforms	NSTA	2022	NSTA
Subsurface structures	NSTA	2022	NSTA
Hydrocarbon fields	NSTA	2022	NSTA
Oil and gas licence blocks	NSTA	2022	NSTA
United Kingdom Continental Shelf (UKCS) block	NSTA	2022	NSTA
Marinas	UK Coastal Atlas of Recreational Boating	2018	RYA
Recreational activities	UK Coastal Atlas of Recreational Boating	2018	RYA
RYA clubs	UK Coastal Atlas of Recreational Boating	2018	RYA
RYA training centres	UK Coastal Atlas of Recreational Boating	2018	RYA
General boating areas	UK Coastal Atlas of Recreational Boating	2018	RYA
Data from marine vessel traffic surveys	MarineTraffic	2019	MarineTraffic
Wrecks (diving sites)	UK Diving	2010	UK Diving
Communication links	Ofcom	2019	Ofcom
Recreational fishing	Cefas British Sea Fishing	2021 2020	Cefas British Sea Fishing

14.4.1.2 No site-specific surveys have been undertaken to inform the EIA for other sea users. This is because a sufficient amount of information relating to other sea users is already available (Table 14.5). The majority of the data used to inform the EIA for other sea users has been taken from these desktop studies. Survey data from 2019 MarineTraffic surveys has been incorporated in the form of Automatic Identification System (AIS) tracks for recreational vessels (Figure 14.3).

14.4.2 Baseline environment

Regional other sea users study area

14.4.2.1 Other sea users receptors within the regional other sea users study area include:

- Aggregate extraction sites
- Disposal sites
- Recreational dive sites.

14.4.2.2 The baseline environment for these receptors is described below.

Marine aggregate extraction sites

14.4.2.3 As per Figure 14.2, there are no licensed marine aggregate extraction areas in the vicinity of the Morgan Generation Assets.

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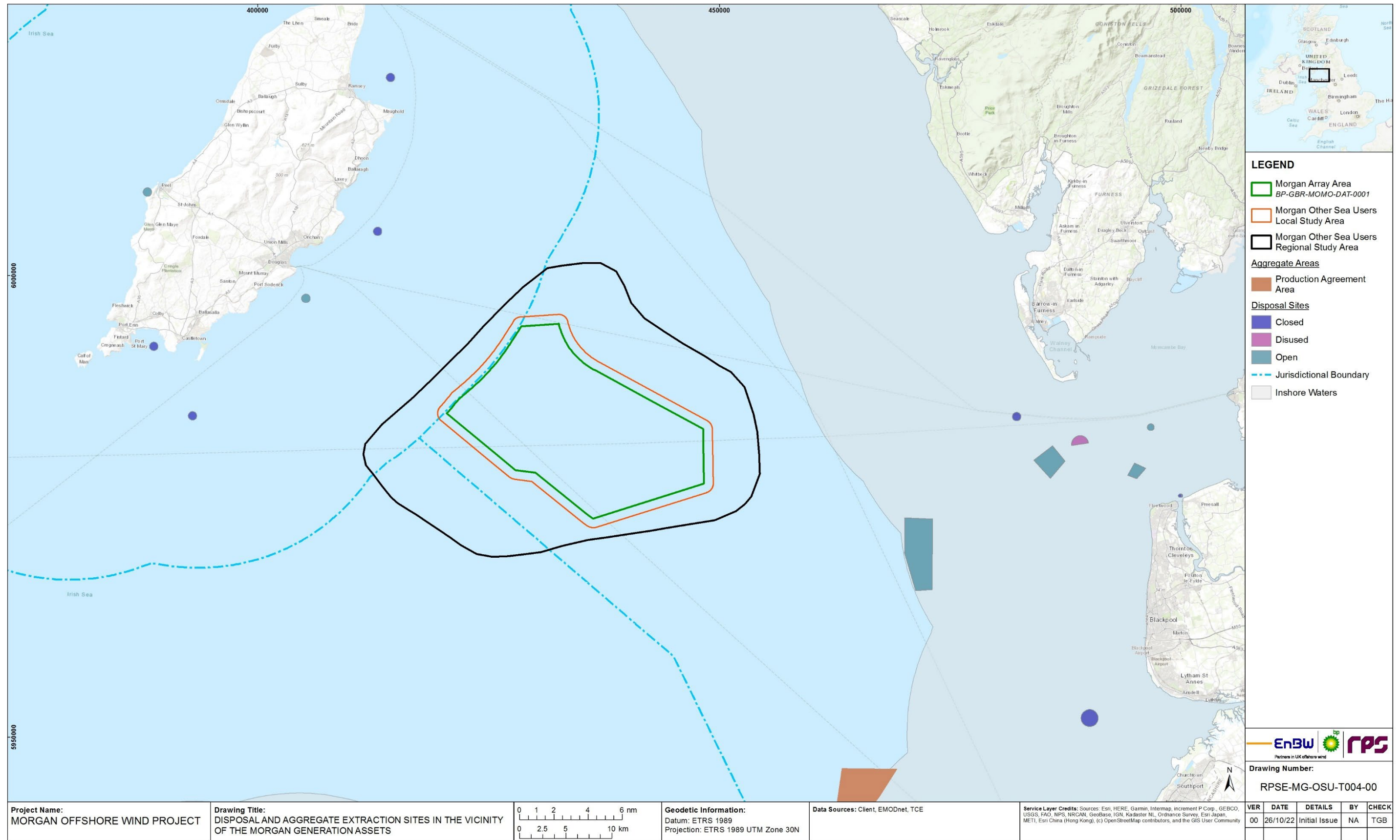


Figure 14.2: Marine aggregate extraction and disposal sites in the vicinity of the Morgan Generation Assets.

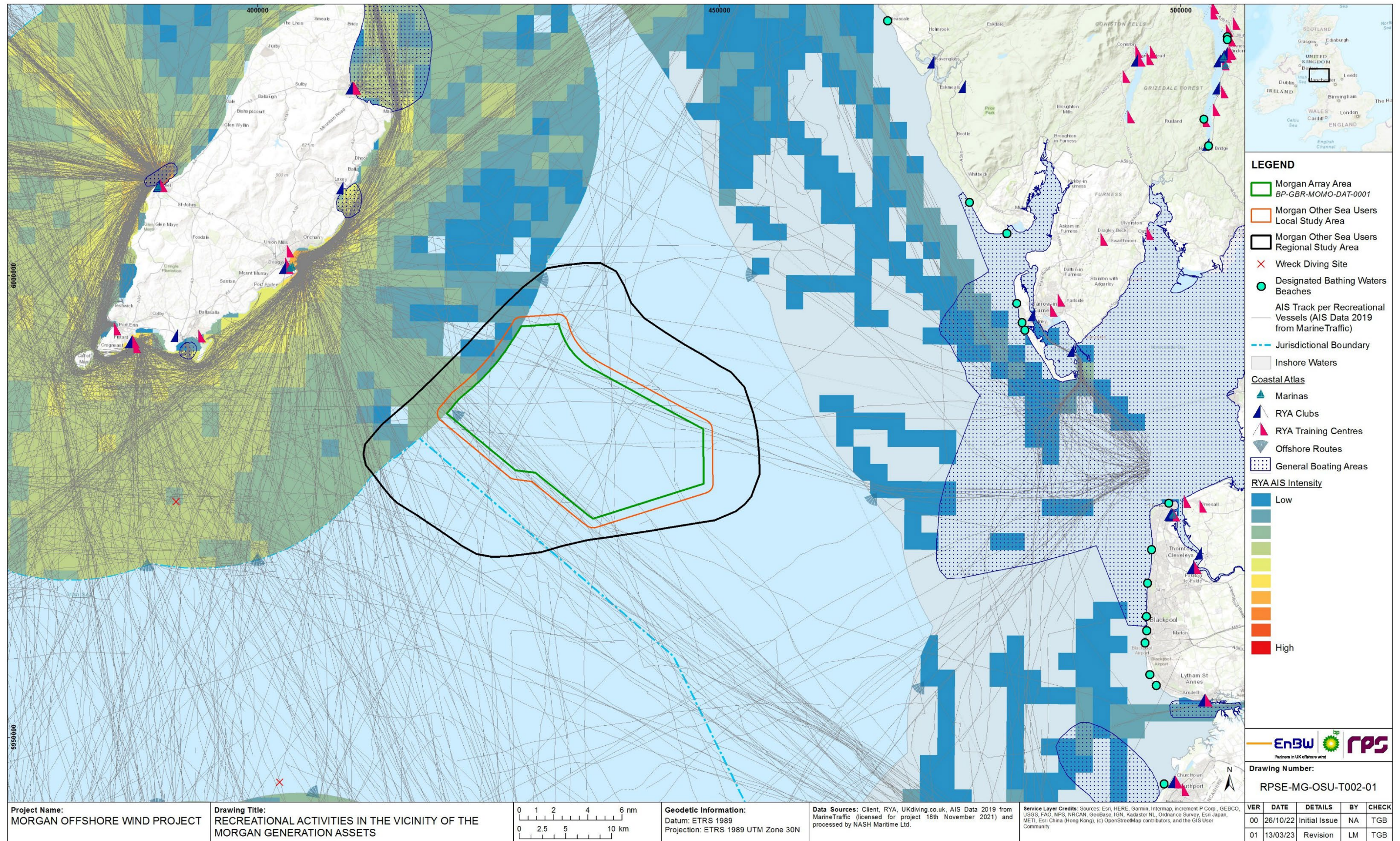


Figure 14.3: Recreational activities in the vicinity of the Morgan Generation Assets.

Recreational dive sites

14.4.2.4 There are no wreck diving sites within the regional other sea users study area (Figure 14.3).

Recreational bathing sites

14.4.2.5 There are no recreational bathing sites within the regional other sea users study area (Figure 14.3).

Local other sea users study area

14.4.2.6 Other sea users receptors within the local other sea users study area include:

- Offshore energy projects (including other offshore wind farms, oil and gas activities and carbon capture and storage)
- Cable and pipeline operators
- Offshore microwave fixed communication links
- Recreational activities such as sailing and motor cruising, and recreational fishing.

14.4.2.7 The baseline environment for these receptors is described below.

Recreational sailing and motor cruising

14.4.2.8 Recreational sailing is generally divided into two categories: offshore and inshore. Offshore sailing is usually undertaken by yachts in the form of either cruising or organised offshore racing. Cruising may include day trips between local ports and often includes a return journey to the home port on the same day.

14.4.2.9 Navigational safety and risk to recreational vessels is considered in volume 4, chapter 12.1: Navigational Risk Assessment (the NRA) of the PEIR. The other sea users Environmental Statement chapter will only consider receptors undertaking recreational sailing and motor cruising as an activity. Data collection and consultation activities carried out to inform the NRA will be used as an additional data source to inform the other sea users assessment.

14.4.2.10 The RYA data is limited to inshore waters, but AIS data tracks show that recreational vessels transit through offshore waters within the local other sea users study area. There is medium to low recreational activity at the northwest edge of the local other sea users study area.

Recreational fishing

14.4.2.11 Sea fishing trips run from Conwy, North Wales and specialise in wreck fishing, deep sea fishing and reef fishing from Anglesey to Liverpool Bay (Sea Fishing Trips in North Wales, 2022). Sea fishing trips also operate from the Isle of Man (Manx Sea Fishing, 2022) and Fleetwood, Lancashire (Blue Mink Boat Charters, 2022) amongst other ports along the coasts of the east Irish Sea.

Infrastructure

Offshore wind farms

14.4.2.12 There are a number of proposed and operational offshore wind farms in the east Irish Sea, the closest of which are shown in Figure 14.4. There is no spatial overlap between any proposed or operational wind farms and the local other sea users study area (and therefore the Morgan Array Area).

14.4.2.13 Four bidding areas for leasing under TCE Offshore Wind Leasing Round 4 were released in September 2019, of which the Morgan Generation Assets is one. The other two from this leasing round in the Irish Sea are the Mona Offshore Wind Project (also being developed by the Applicant) and Morecambe Offshore Windfarm, being developed by Offshore Wind Ltd. (a joint venture between Cobra Instalaciones y Servicios, S.A. and Flotation Energy). Both the Morgan Offshore Wind Project and Morecambe Offshore Windfarm have been scoped into the Pathways to 2030 workstream under the Offshore Transmission Network Review (OTNR). The output of this process concluded that the Morgan Offshore Wind Project and Morecambe Offshore Windfarm should work collaboratively in connecting the wind farms to the National Grid at Penwortham in Lancashire.

14.4.2.14 Within Isle of Man territorial waters, Ørsted have signed an AfL allowing them to investigate an area for a proposed offshore wind farm. More information on the other offshore wind farms in the east Irish Sea is contained in Table 14.6.

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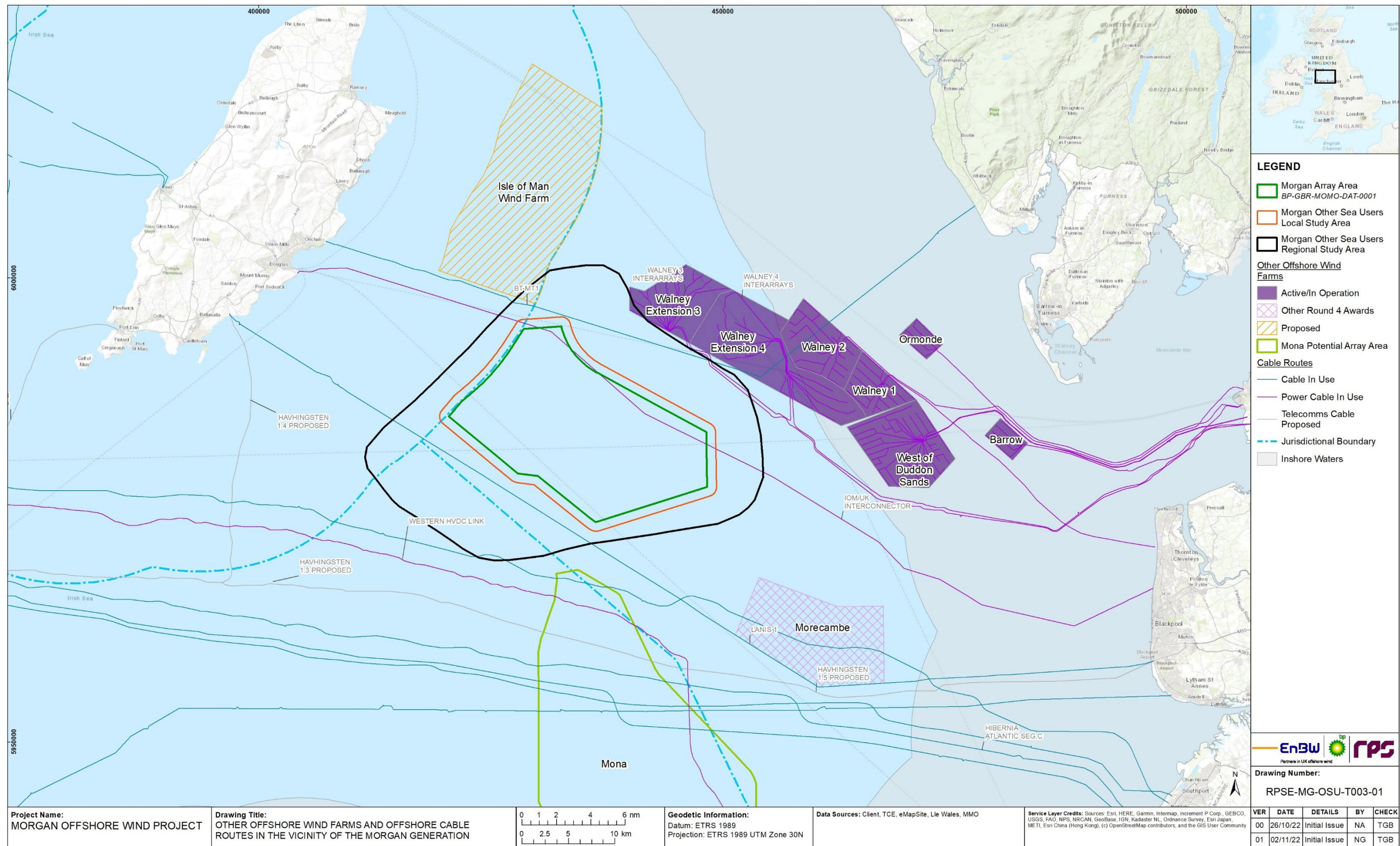


Figure 14.4: Other offshore wind farms and cables in the vicinity of the Morgan Generation Assets.

Table 14.6: Offshore wind farms in the east Irish Sea.

Name	Capacity (MW)	Operator	Distance to Morgan Array Area (km)
Operational			
Walney Extension (3 and 4)	659	Ørsted	7.6
Walney 2	184	Walney (UK) Offshore Windfarms Ltd.	11.9
West of Duddon Sands	389	Ørsted	15.2
Walney 1	184	Walney (UK) Offshore Windfarms Ltd.	15.5
Ormonde	150	Ormonde Energy Ltd.	23.3
Barrow	90	Barrow Offshore Wind Ltd.	30
Gwynt y Môr	576	Innogy	52
Burbo Bank	90	Ørsted	56
Rhyl Flats	90	RWE Renewables	60.5
North Hoyle	60	RWE npower renewables	61
Burbo Bank Extension	259	Ørsted	61.6
Round 4 projects			
Mona Offshore Wind Project	1,500	bp/EnBW	5.5
Morecambe Offshore Windfarm	480	Offshore Wind Ltd.	11.2
Proposed			
Isle of Man Wind Farm	TBC	Ørsted	2.6
Awel y Môr	1,100	Innogy	47.2

Cables

14.4.2.15 There is one power cable which intersects the local other sea users study area, the IOM/UK Interconnector cable which is operated by the Manx Electricity Authority and links the Isle of Man to the UK National Grid. This is shown in Figure 14.4.

Oil and gas licence blocks

14.4.2.16 Licences for the exploration and extraction of oil and gas on the UKCS have been offered since 1964 and are granted by the NSTA. These licences are granted for identified geographical United Kingdom Hydrographic Office (UKHO) areas (blocks

and sub-blocks) in consecutive rounds. As shown in Figure 14.5, three currently licensed blocks overlap with the local other sea users study area. These are blocks 110/2c, 113/26a and 113/27a, all operated by Chrysaor Resources (Irish Sea) Limited (part of Harbour Energy). These three licence blocks are part of the Millom field.

14.4.2.17 On 07 October 2022 the NSTA launched the 33rd Oil and Gas Licensing Round, inviting applications for licences to explore and potentially develop 898 blocks and part-blocks, which may lead to over 100 licences being awarded. If any of the blocks licensed as a result of this are located within the local other sea users study area, impacts upon them will be considered in the Environmental Statement.

Oil and gas platforms and pipelines

14.4.2.18 Figure 14.6 shows offshore oil and gas installations and pipelines in the vicinity of the Morgan Generation Assets. There is one platform within the local other sea users study area which is Millom West. However, the owner of this platform, Harbour Energy, has informed the Applicant that the Millom West platform and its associated pipelines are currently in the process of being decommissioned. The wells are suspended and will be plugged and abandoned in late 2023/early 2024, with the removal of infrastructure to follow.

14.4.2.19 The South Morecambe cluster to the southeast of the Morgan Array Area is operated by Spirit Energy. The manned central processing complex comprises three bridge-linked platforms, consisting of an accommodation platform (AP1), central processing platform (CPP1) and drilling platform (DP1). There are four further satellite platforms tied back to the central processing complex which are DP3, DP4, DP6 and DP8. Production from DP3 and DP4 has ceased, the wells having been abandoned and the platforms are currently being decommissioned.

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

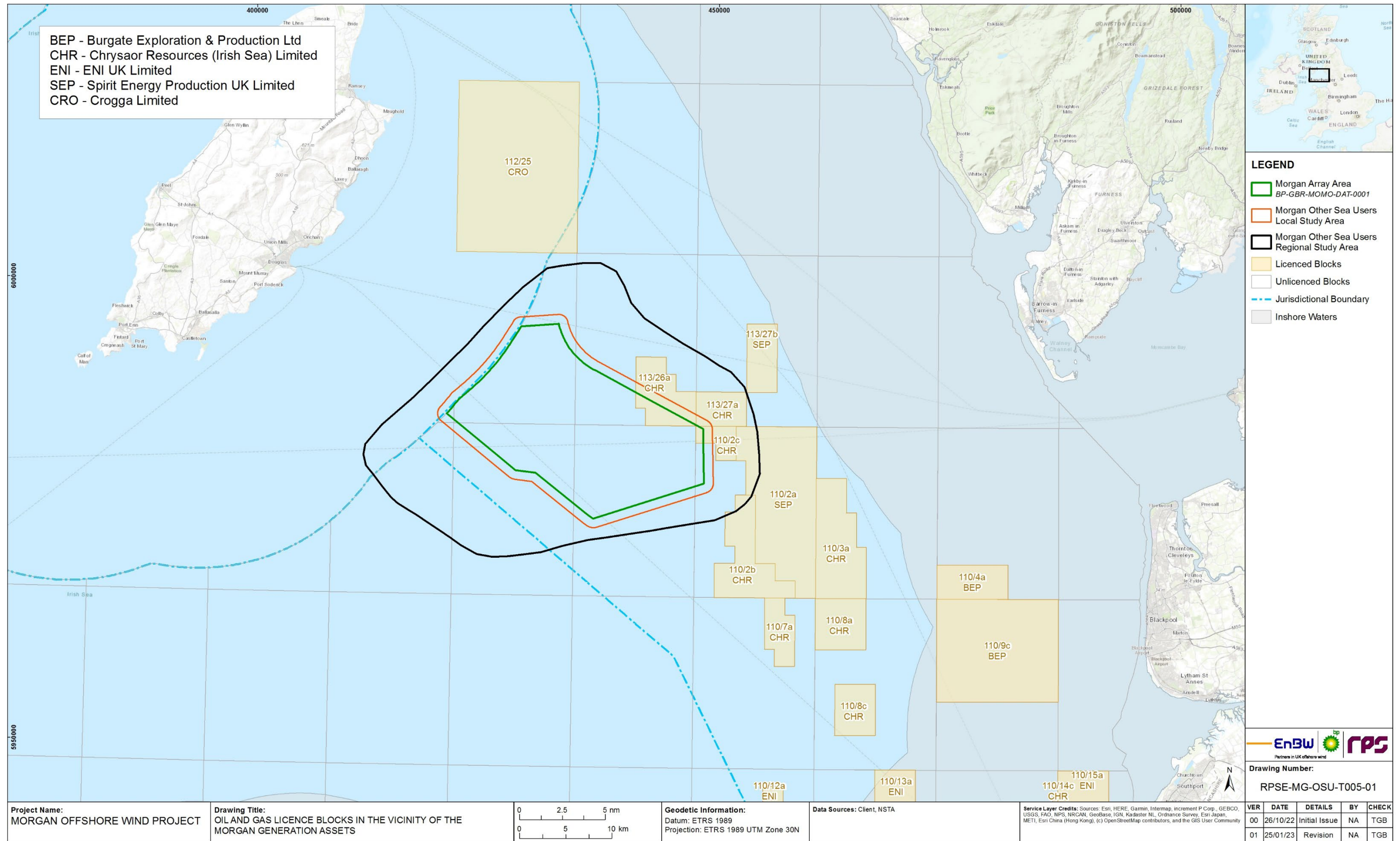


Figure 14.5: Oil and gas licence blocks in the vicinity of the Morgan Generation Assets.

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

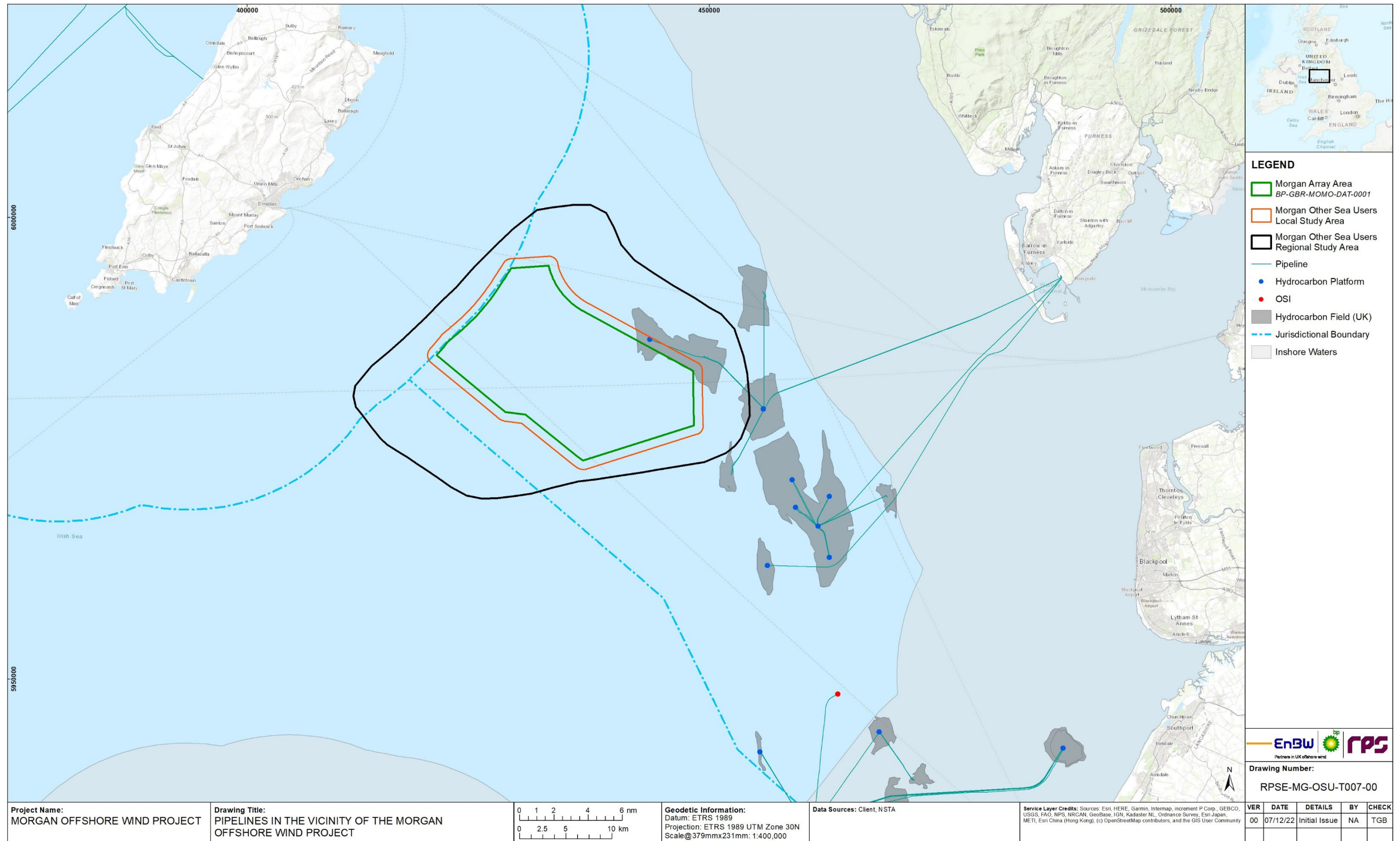


Figure 14.6: Offshore oil and gas platforms, installations and pipelines in the vicinity of the Morgan Generation Assets.

14.4.3 Future baseline scenario

14.4.3.1 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 require that “an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge” is included within the Environmental Statement. In the event that the Morgan Generation Assets do not come forward, an assessment of the future baseline conditions has been carried out and is described within this section.

14.4.3.2 The future baseline scenario for recreational activities is considered unlikely to change substantially from that presented in section 14.4.2, in the absence of the Morgan Generation Assets. The future baseline scenario for offshore cables and marine aggregates is subject to gradual change as new projects and sites are identified. The future baseline scenario for oil and gas activities and associated development (including platforms, wells and pipelines) is considered to be subject to the greatest degree of change, which will depend upon currently unknown outcomes of, for example, acquisitions, exploration and development, and decommissioning.

14.4.4 Data limitations

14.4.4.1 The data sources used in this chapter are detailed in Table 14.5. The data used is the most up to date publicly available information which can be obtained from the applicable data sources as cited, and data that has been provided through consultation as detailed in section 14.3. The data is therefore limited by what is available and by what has been made available at the time of writing the PEIR.

14.4.4.2 Given the level of activity in the east Irish Sea, it is considered that the data employed in the assessment is of a robust nature and is sufficient for the purposes of the impact assessment presented.

14.5 Impact assessment methodology

14.5.1 Overview

14.5.1.1 The other sea users impact assessment has followed the methodology set out in volume 1, chapter 5: EIA methodology of the PEIR. Specific to the other sea users impact assessment, the following guidance documents have also been considered:

- The RYA's position on offshore renewable energy developments: Paper 1 (of 4) – Wind Energy, June 2019 (RYA, 2019)
- European Subsea Cables UK Association (ESCA) guideline no 6, the proximity of offshore renewable energy installations and submarine cable infrastructure in UK waters (ESCA, 2016)
- International Cable Protection Committee (ICPC) recommendations:
 - Recommendation No.2-11B: Cable routing and reporting criteria (ICPC, 2015)
 - Recommendation No.3-10C: Telecommunications cable and oil pipeline/power cables crossing criteria (ICPC, 2014)

- Recommendation No.13-2C: The proximity of offshore renewable wind energy installations and submarine cable infrastructure in national waters (ICPC, 2013)
- Pipeline crossing agreement and proximity agreement pack (Oil and Gas UK, 2021)
- Submarine cables and offshore renewable energy installations proximity study (TCE, 2012).

14.5.2 Impact assessment criteria

14.5.2.1 The criteria for determining the significance of effects is a two-stage process that involves defining the magnitude of the impacts and the sensitivity of the receptors. This section describes the criteria applied in this chapter to assign values to the magnitude of potential impacts and the sensitivity of the receptors. The terms used to define magnitude and sensitivity are based on those which are described in further detail in volume 1, chapter 5: EIA methodology of the PEIR.

14.5.2.2 The criteria for defining magnitude in this chapter are outlined in Table 14.7 below.

Table 14.7: Definition of terms relating to the magnitude of an impact.

Term	Definition
High	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements (Adverse)
	Large scale or major improvement or resource quality; extensive restoration or enhancement; major improvement of attribute quality (Beneficial)
Medium	Loss of resource, but not adversely affecting integrity of resource; partial loss of/damage to key characteristics, features or elements (Adverse)
	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality (Beneficial)
Low	Some measurable change in attributes, quality or vulnerability, minor loss or, or alteration to, one (maybe more) key characteristics, features or elements (Adverse)
	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring (Beneficial)
Negligible	Very minor loss or detrimental alteration to one or more characteristics, features or elements (Adverse)
	Very minor benefit to, or positive addition of one or more characteristics, features or elements (Beneficial)
No change	No loss or alteration of characteristics, features or elements; no observable impact either adverse or beneficial

14.5.2.3 The criteria for defining sensitivity in this chapter are outlined in Table 14.8 below.

Table 14.8: Definition of terms relating to the sensitivity of the receptor.

Sensitivity	Definition
Very High	High value/importance and vulnerability and limited potential for recoverability for recreational activities, cable/pipeline activities, aggregate extraction or oil and gas operations resulting from: Very low spatial adaptability due to extent of operational range and/or limited ability to operate in other areas Very low spatial tolerance due to dependence upon a limited number of sites. Very low recoverability with some ability to mitigate loss of area by operating in alternative areas.
High	High value/importance and vulnerability and limited potential for recoverability for recreational activities, cable/pipeline activities, aggregate extraction or oil and gas operations resulting from: Low spatial adaptability due to extent of operational range and/or limited ability to operate in other areas Low spatial tolerance due to dependence upon a limited number of sites. Low recoverability with some ability to mitigate loss of area by operating in alternative areas.
Medium	High or medium value/importance and vulnerability and limited potential for recoverability for recreational activities, cable/pipeline activities, aggregate extraction or oil and gas operations resulting from: Limited spatial adaptability due to extent of operational range and/or limited ability to operate in other areas Limited spatial tolerance due to dependence upon a limited number of sites. Limited recoverability with some ability to mitigate loss of area by operating in alternative areas.
Low	Low or medium value/importance and vulnerability and limited potential for recoverability for recreational activities, cable/pipeline activities, aggregate extraction or oil and gas operations resulting from: Moderate spatial adaptability due to extent of operational range and/or limited ability to operate in other areas Moderate spatial tolerance due to dependence upon a limited number of sites. Moderate recoverability with some ability to mitigate loss of area by operating in alternative areas.
Negligible	Very low value/importance and vulnerability and high potential for recoverability for recreational activities, cable/pipeline activities, aggregate extraction or oil and gas operations resulting from: High spatial adaptability due to extent of operational range and/or limited ability to operate in other areas High spatial tolerance due to dependence upon a limited number of sites. High recoverability with some ability to mitigate loss of area by operating in alternative areas.

14.5.2.4 The significance of the effect upon other sea users is determined by correlating the magnitude of the impact and the sensitivity of the receptor. The particular method employed for this assessment is presented in Table 14.9. Where a range of significance of effect is presented in Table 14.9, the final assessment for each effect is based upon expert judgement.

14.5.2.5 For the purposes of this assessment, any effects with a significance level of minor or less have been concluded to be not significant in terms of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

Table 14.9: Matrix used for the assessment of the significance of the effect.

Sensitivity of Receptor	Magnitude of Impact				
	No Change	Negligible	Low	Medium	High
Negligible	No change	Negligible	Negligible or Minor	Negligible or Minor	Minor
Low	No change	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
Medium	No change	Negligible or Minor	Minor	Moderate	Moderate or Major
High	No change	Minor	Minor or Moderate	Moderate or Major	Major
Very High	No change	Minor	Moderate or Major	Major	Major

14.6 Key parameters for assessment

14.6.1 Maximum Design Scenario

14.6.1.1 The maximum design scenarios (MDSs) identified in Table 14.10 have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. These scenarios have been selected from the Project Design Envelope (PDE) provided in volume 1, chapter 3: Project description of the PEIR. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the PDE (e.g. different infrastructure layout), to that assessed here be taken forward in the final design scheme.

Table 14.10: Maximum Design Scenario considered for the assessment of potential impacts on other sea users.

^a C=construction, O=operations and maintenance, D=decommissioning

Potential impact	Phase ^a			Maximum Design Scenario	Justification
	C	O	D		
Displacement of recreational activities	✓	✓	✓	<p>Construction phase</p> <ul style="list-style-type: none"> • Four-year construction duration • During the construction phase the displacement of recreational activities will be gradual as the presence of infrastructure increases, reaching the MDS outlined below in the operations and maintenance phase. The MDS in terms of the presence of infrastructure would be on the completion of construction, during the operations and maintenance phase • Construction safety zones: 500m safety zones around wind turbines and offshore substation platforms (OSPs) during their construction. 50m safety zone around each infrastructure during the construction phase where no construction works are taking place on that infrastructure (for example, where a wind turbine is incomplete or is in the process of being tested before commissioning). Rolling advisory safety zones of 500m around vessels installing inter-array cables and interconnector cables • Construction vessels: Up to 1,983 installation vessel movements (return trips) during construction (535 main installation/support vessels, 76 tug/anchor handlers, 48 cable lay vessels, 18 guard vessels, 34 survey vessels, 43 seabed preparation vessels, 1,165 crew transfer vessels (CTVs), 42 scour protection installation vessels and 22 cable protection installation vessels) • Reduction of access around infrastructure during construction: <ul style="list-style-type: none"> – Wind turbines: up to 107, minimum spacing 1,000m between rows of wind turbines and 875m between wind turbines in a row – OSPs: up to four – Inter-array cables: up to 500km, up to 67 cable crossings – Interconnector cables: up to 50km, up to 10 cable crossings. <p>Operations and maintenance phase</p> <ul style="list-style-type: none"> • 35-year operations and maintenance duration • Operational safety zones: 500m around infrastructure such as a wind turbine during periods of major maintenance • Vessels: Up to a total of 21 operations and maintenance vessels on site at any one time (six CTVs/workboats, three jack-up vessels, four cable repair vessels, four service operation vessels (SOV) or similar and four excavators/backhoe dredgers). Up to 1,256 operations and maintenance vessel movements (return trips) each year (1,095 CTVs/workboats, 25 jack-up vessels, 16 cable repair vessels, 104 SOV or similar and 16 excavators/backhoe dredgers) • Reduction of access in the array area due to the presence of infrastructure, such as wind turbines, as per the construction phase above and cable repair/reburial activities: <ul style="list-style-type: none"> – Inter-array cables: repair of up to 8km of cable in one event every three years. Reburial of up to 20km of cable in one event every five years – Interconnector cables: repair of up to 20km of cable in each of three events every 10 years. Reburial of up to 3km of cable in one event every five years. <p>Decommissioning phase</p> <ul style="list-style-type: none"> • During the decommissioning phase any displacement of recreational activities would gradually decrease from the operational MDS as structures are removed and cut below the seabed. 	<p>The greatest amount of the largest infrastructure and associated minimum spacing and the greatest extent of advisory safety zones, over the longest construction, operations and maintenance, and decommissioning phases represents the greatest potential for displacement of recreational activities.</p>
Increased SSCs and associated deposition affecting recreational diving and bathing sites	✓	✓	✓	<p>Construction phase</p> <ul style="list-style-type: none"> • Four-year construction duration. <p><u>Site preparation:</u></p> <ul style="list-style-type: none"> • Sandwave clearance activities undertaken over an approximate 12-month duration within the wider four year construction programme. • Wind turbines and OSP foundations: sandwave clearance has been calculated on the basis of wind turbine foundations and an assumption of clearance at up to 50% of locations. Spoil volume per location has been calculated on the basis of 34 	<p><u>Site preparation:</u></p> <p>The volume of material to be cleared from individual sandwaves will vary according to the local dimensions of the sandwave (height, length and shape) and the level to which the sandwave must be reduced. These details are not fully known at this stage, however based on the available data, it is anticipated that the sandwaves requiring clearance in the array area are likely to be in the range of 15m in height.</p> <p>Site clearance activities may be undertaken using a range of techniques. The suction hopper dredger will result in the</p>

Potential impact	Phase ^a			Maximum Design Scenario	Justification
	C	O	D		
				<p>locations supporting the largest suction bucket four-legged jacket foundation with an associated base diameter of 205m to an average depth of 7.5m. This equates to a total spoil volume of 8,416,621m³ and a 'per location' volume of 247,548m³</p> <ul style="list-style-type: none"> Inter-array cables: sandwave clearance along 250km of cable length, with a width of 104m, to an average depth of 5.1m. Total spoil volume of 11,843,641m³ Interconnector cables: sandwave clearance along 36km of cable length, with a width of 104m, to an average depth of 5.1m. Total spoil volume of 3,060,814m³ Removal of up to 43,000m of disused cables. <p><u>Foundation installation:</u></p> <ul style="list-style-type: none"> Undertaken over an approximate 12-month duration Wind turbines: installation of up to 68 monopiles of 16m diameter, drilled to a depth of 60m at a rate of up to 0.73m/h. Two monopiles installed concurrently. Spoil volume of 13,460m³ per pile OSPs: installation of one OSP with foundations consisting of two 16m monopiles, drilled to a depth of 60m at a rate of up to 0.73m/h. Two monopiles installed concurrently. Spoil volume of 13,460m³ per pile. <p><u>Cable installation:</u></p> <ul style="list-style-type: none"> Inter-array cables: Installation via trenching of up to 500km of cable, with a trench width of up to 3m and a depth of up to 3m. Total spoil volume of 2,250,000m³ Installed over a period of approximately 12 months Interconnector cables: installation via trenching of up to 50km of cable, with a trench width of up to 3m and a depth of up to 3m. Total spoil volume of 225,000m³. Installed over a period of approximately four months. <p>Operations and maintenance phase</p> <ul style="list-style-type: none"> 35-year operations and maintenance duration Inter-array cables: repair of up to 8km of cable in one event every three years. Reburial of up to 20km of cable in one event every five years Interconnector cables: repair of up to 20km of cable in each of three events every 10 years. Reburial of up to 3km of cable in one event every five years. <p>Decommissioning phase</p> <ul style="list-style-type: none"> Removal of suction bucket jacket: SSC will be temporarily increased due to the overpressure required to release them. 	<p>greatest increase in suspended sediment and largest plume extent as material is released near the water surface during the disposal of material.</p> <p>Boulder clearance activities will result in minimal increases in SSC and have therefore not been considered in the assessment.</p> <p><u>Foundation installation:</u></p> <p>Installation of foundations via augured (drilled) operations results in the release of the largest volume of sediment. The greatest volume of sediment disturbance by drilling at individual foundation locations and across the site as a whole is associated with the largest diameter monopile for wind turbines. The selected OSP scenario represents the greatest volume of sediment to be released for a drilling event.</p> <p><u>Cable installation:</u></p> <p>Cable routes inevitably include a variety of seabed material and in some areas 3m depth may not be achieved or may be of a coarser nature which settles in the vicinity of the cable route. The assessment therefore considers the upper bound in terms of suspended sediment and dispersion potential.</p> <p>Cables may be buried by ploughing, trenching or jetting with jetting mobilising the greatest volume of material to increase SSC.</p> <p><u>Operations and maintenance phase:</u></p> <p>The greatest foreseeable number of cable reburial and repair events is considered to be the MDS for sediment dispersion.</p>
Impacts to existing cables or pipelines or restrictions on access to cables or pipelines	✓	✓	✓	As for 'Displacement of recreational activities' – see above.	This represents the maximum extent of infrastructure and associated construction and maintenance activities in the vicinity of existing cables or pipelines.
Increased SSCs and associated deposition affecting aggregate extraction areas	✓	✓	✓	As for 'Increased SSCs and associated deposition affecting recreational diving sites' – see above.	Greatest volume of sediment released into the water column, resulting in greatest potential for impact on aggregate extraction receptors. See 'Increased SSCs and associated deposition affecting recreational diving and bathing sites' above.

Potential impact	Phase ^a			Maximum Design Scenario	Justification
	C	O	D		
Alterations to sediment transport pathways affecting aggregate extraction areas	✓	✓	✓	<p>Construction phase</p> <p>During the construction phase any alterations to sediment transport pathways affecting aggregate extraction areas will be gradual as the presence of infrastructure increases reaching the MDS outlined below in the operations and maintenance phase. The MDS in terms of the presence of infrastructure would be on the completion of construction, during the operations and maintenance phase.</p> <p>Operations and maintenance phase</p> <ul style="list-style-type: none"> • Wind turbines: 68 installations with four-legged suction bucket foundations, each jacket leg with a diameter of 5m, spaced 48m apart, and each bucket with a diameter of 16m. Scour protection to a height of 2.5m. Total footprint of 10,816m² per wind turbine • OSPs: up to four installations with four-legged suction bucket foundations, each jacket leg with a diameter of 3m, spaced 30m apart, and each bucket with a diameter of 14m. Scour protection to a height of 2.5m. Total footprint of 6,241m² footprint per OSP • Inter-array cables: cable protection along 50km of the cable, with a height of up to 3m and up to 10m width. Up to 67 cable crossings, each crossing has a height of up to 4m, a width of up to 32m and a length of up to 60m • Interconnector cables: cable protection along 10km of the cable, with a height of up to 3m and up to 10m width. Up to ten cable crossings, each crossing has a height of up to 3m, a width of up to 20m and a length of up to 50m. <p>Decommissioning phase</p> <p>During the decommissioning phase any alterations to sediment transport pathways affecting aggregate extraction areas would gradually decrease from the operational MDS as structures are removed and cut below the seabed.</p> <ul style="list-style-type: none"> • Scour and cable protection may remain <i>in situ</i> and continue to influence tidal currents. 	<p>The greatest in-water column blockage to influence tidal flow and wave climate is from the wind turbines with the largest four-legged suction bucket foundations. The four legs provide the greatest obstruction to tidal flows at each wind turbine site and in terms of the overall array area obstructions are only 1% smaller than the option with the largest site-wide obstruction (which comprises much smaller individual obstructions). Suction bucket foundations have the largest footprint at each wind turbine in terms of scour protection and provide the greatest influence on bathymetry. The devices also have a greater footprint over the site as a whole rather than the more numerous smaller design options.</p> <p>The greatest overall in-water column blockage to influence tidal flow and wave climate from the OSPs is the maximum number of OSPs (four) with three-legged suction bucket foundations. These parameters also present the largest overall footprints to affect changes in bathymetry and sediment transport pathways.</p>
Reduction or restriction of oil and gas exploration activities (including surveys, drilling and the placement of infrastructure) within the Morgan Array Area	✓	✓	✓	As for 'Displacement of recreational activities' – see above.	The greatest amount of the largest infrastructure and associated minimum spacing and the greatest extent of advisory safety zones, over the longest construction, operations and decommissioning period represents the greatest potential for reduction or restriction of oil and gas exploration activities.
Interference with the performance of REWS located on oil and gas platforms	×	✓	×	<p>Operations and maintenance phase</p> <ul style="list-style-type: none"> • Wind turbines: up to 107 wind turbines, minimum spacing 1,000m between rows of wind turbines and 875m between wind turbines in a row • OSPs: up to four OSPs. 	REWS may be unable to provide an effective service due to interference on radar displays from wind turbines and OSPs. The maximum number of structures is the MDS.
Interference with offshore microwave fixed communication links	×	✓	×	<p>Operations and maintenance phase</p> <ul style="list-style-type: none"> • Wind turbines: up to 107 wind turbines, minimum spacing 1,000m between rows of wind turbines and 875m between wind turbines in a row • OSPs: up to four OSPs. 	Offshore microwave fixed communication links between offshore installations may be unable to provide an effective service due to interference caused by the physical presence of wind turbines and OSPs. The maximum number of structures is the MDS.

14.6.2 Impacts scoped out of the assessment

14.6.2.1 On the basis of the baseline environment and the description of development outlined in volume 1, chapter 3: Project description of the PEIR, the following impacts are proposed to be scoped out of the assessment for other sea users:

- Displacement of recreational activities relating to water sports and fishing
- Increased SSCs and associated deposition affecting recreational diving and bathing sites
- Increased SSCs and associated deposition affecting aggregate extraction areas
- Alterations to sediment transport pathways affecting aggregate extraction areas.

14.7 Measures adopted as part of the Morgan Generation Assets

14.7.1.1 For the purposes of the EIA process, the term measures adopted as part of the project is used to include the following measures (adapted from IEMA, 2016):

- Measures included as part of the project design. These include modifications to the location or design envelope of the Morgan Generation Assets which are integrated into the application for consent. These measures are secured through the consent itself through the description of the development and the parameters secured in the DCO and/or marine licences (referred to as primary mitigation in IEMA, 2016)
- Measures required to meet legislative requirements, or actions that are standard practice used to manage commonly occurring environmental effects and are secured through the DCO requirements and/or the conditions of the marine licences (referred to as tertiary mitigation in IEMA, 2016).

14.7.1.2 A number of measures (primary and tertiary) have been adopted as part of the Morgan Generation Assets to reduce the potential for impacts on other sea users. These are outlined in Table 14.11 below. As there is a secured commitment to implementing these measures for the Morgan Generation Assets, they have been considered in the assessment presented in section 14.8 below (i.e. the determination of magnitude and therefore significance assumes implementation of these measures).

Table 14.11: Measures adopted as part of the Morgan Generation Assets.

Measures adopted as part of the Morgan Generation Assets	Justification	How the measure will be secured
Primary measures: Measures included as part of the project design		
<p>The Morgan Generation Assets intend to apply for a standard 500m safety zone (as per the 2007 Safety Zone regulations cited in the justification column), around each of the wind turbines and OSPs whilst construction/decommissioning works are ongoing.</p> <p>Safety zones of 50m will be sought for incomplete structures where construction/decommissioning activity may be temporarily paused (and therefore the 500m safety zone has lapsed).</p> <p>During the operations and maintenance phase a 500m safety zone shall also be applied for around wind turbines and OSPs undergoing major maintenance.</p> <p>Details of safety zones will also be set out within the emergency response and co-operation plan.</p>	<p>Safety zones are established in the interests of safety to other sea users receptors, in accordance with The Electricity (Offshore Generating Stations) (Safety Zones) (Application Procedures and Control of Access) Regulations 2007.</p>	<p>Proposed to be secured within the DCO and deemed marine licence.</p>
Tertiary measures: Measures required to meet legislative requirements, or adopted standard industry practice		
<p>Where the Morgan Generation Assets cables will be required to cross an active cable, it is intended that a commercial 'crossing agreement' will be entered into with the cable operator. This is a formal arrangement that establishes the responsibilities and obligations of both parties and allows operations to be managed safely.</p>	<p>To reduce potential conflict at cable crossing locations. A crossing agreement based upon the ICPC Recommendation 3-10C 'Telecommunications Cable and Oil Pipeline/Power Cables Crossing Criteria' (ICPC, 2014) will be used for any cable crossings. Where a cable is inactive, the Applicant will consult with the cable operator to ascertain if such a crossing agreement is required.</p>	<p>In line with standard industry practice crossing agreements would be negotiated and agreed with operators as required.</p>
<p>Promulgation of information advising on the nature, timing and location of activities, including through Notices to Mariners.</p>	<p>To ensure other marine users are aware of operations associated with the Morgan Generation Assets.</p>	<p>Proposed to be secured within the DCO and deemed marine licence.</p>
<p>Navigational aids and marine charting.</p>	<p>To ensure other marine users are aware of operations and infrastructure associated with the Morgan Generation Assets.</p>	<p>Proposed to be secured within the DCO and deemed marine licence.</p>
<p>Consultation with oil and gas operators and other energy infrastructure operators to promote and maximise cooperation between parties and minimise both spatial and temporal interactions between conflicting activities.</p>	<p>Licence blocks will be relinquished and acquired by different operators over the duration of the project life, and oil and gas operations will change according to the project phase. By continued consultation with the oil and gas operators both parties will keep informed of planned activities in order to minimise disruption to either party's operations and to maximise coexistence.</p>	<p>In line with standard industry practice.</p>
<p>Development and adherence to a Cable Specification and Installation Plan which will include cable burial where possible and cable protection as necessary.</p>	<p>To ensure that the cable remains secure, is not a hazard to other sea users and does not risk becoming exposed and damaged by tidal currents.</p>	<p>Proposed to be secured within the DCO and deemed marine licence.</p>
<p>Installation of infrastructure over or adjacent to existing cables or pipelines will be subject to crossing or proximity agreements between the two parties, prior to the start of the construction phase.</p>	<p>To reduce potential conflict at crossing locations. Cable and pipeline crossing/proximity agreements will be based on previously referenced guidance from the ICPC and Oil and Gas UK.</p>	<p>In line with standard industry practice crossing/proximity agreements would be negotiated and agreed with operators as required.</p>

14.8 Assessment of significant effects

14.8.1 Overview

- 14.8.1.1 The impacts of the construction, operations and maintenance, and decommissioning phases of the Morgan Generation Assets have been assessed on other sea users. The potential impacts arising from the construction, operations and maintenance and decommissioning phases of the Morgan Generation Assets are listed in Table 14.10, along with the MDS against which each impact has been assessed.
- 14.8.1.2 A description of the potential effect on other sea users receptors caused by each identified impact is given below.

14.8.2 Displacement of recreational activities

- 14.8.2.1 Construction, operations and maintenance, and decommissioning of wind turbines, OSPs and cables may lead to the displacement of recreational activities such as sailing and motor cruising, and recreational fishing. The MDS is represented by the greatest amount of the largest infrastructure and associated minimum spacing and the greatest extent of advisory safety zones, over the longest construction, operations and maintenance and decommissioning phases. This is summarised in Table 14.10.

Construction phase

Magnitude of impact

- 14.8.2.2 The installation of infrastructure and the presence of safety zones may result in the displacement of recreational activities from the Morgan Array Area.
- 14.8.2.3 The Morgan Generation Assets have a construction phase of up to four years. The spatial extent of the Morgan Array Area is 322.2km². There is also potential for safety zones to extend 500m beyond this area. The impact of safety zones is mostly reversible as once each structure has been installed and commissioned these will be removed. The Morgan Array Area is 22.3km from shore (the Isle of Man coastline) and 36.3km from the northwest coast of England at its nearest point. Therefore, frequency of impact within the Morgan Array Area is low. Up to 1,983 installation vessel movements will be required during construction, with 500m rolling advisory safety zones around cable installation vessels.
- 14.8.2.4 Underwater sound associated with the construction of the Morgan Generation Assets has the potential to affect fish and shellfish, which subsequently has the potential to impact upon recreational fishing. Further information on underwater sound is presented in volume 3, annex 3.1: Underwater sound technical report of the PEIR. Potential impacts on fish and shellfish behaviour associated with underwater sound have been assessed as minor adverse in volume 2, chapter 8: Fish and shellfish ecology of the PEIR.
- 14.8.2.5 The impact is predicted to be of local spatial extent, short to medium term duration and reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **negligible**.

Sensitivity of the receptor

- 14.8.2.6 Recreational vessels are able to alter their route, dependent on the target destination. Notices to Mariners will be promulgated regularly during the construction phase, advising of the location and nature of construction works, ensuring that recreational activities can be planned accordingly. As there is no inshore or intertidal element of the Morgan Generation Assets, no construction activities will occur in the nearshore area and therefore interaction with recreational activities will be limited.
- 14.8.2.7 The receptor is deemed to be of low vulnerability, high recoverability and moderate value. The sensitivity of the receptor is therefore, considered to be **negligible**.

Significance of the effect

- 14.8.2.8 Overall, it is predicted that the sensitivity of the receptor is considered to be **negligible** and the magnitude is deemed to be **negligible**. As set out in Table 14.9, the effect will therefore be of **negligible adverse** significance, which is not significant in EIA terms.

Operations and maintenance phase

Magnitude of impact

- 14.8.2.9 The presence of infrastructure, including wind turbines and OSPs, may result in the displacement of recreational craft and recreational fishing vessels from the Morgan Array Area.
- 14.8.2.10 The Morgan Generation Assets have an operations and maintenance phase of up to 35 years. 500m safety zones will be established around infrastructure such as wind turbines during periods of major maintenance. Up to 1,256 operations and maintenance vessel movements may be required each year. As stated in the description of the magnitude of this impact during the construction phase, frequency of impact within the Morgan Array Area is low. Recreational vessels will be able to access and transit through the Morgan Array Area, so displacement due to the presence of infrastructure will not occur.
- 14.8.2.11 The impact is predicted to be of local spatial extent, long term duration, continuous and irreversible over the 35-year operations and maintenance phase of the Morgan Generation Assets. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **low**.

Sensitivity of receptor

- 14.8.2.12 Recreational vessels are able to alter their route, dependent on the target destination. Notices to Mariners will be promulgated regularly during the operations and maintenance phase, advising of the location and nature of major maintenance works, ensuring that recreational activities can be planned accordingly. As there is no inshore or intertidal element of the Morgan Generation Assets, no construction activities will occur in the nearshore area and therefore interaction with recreational activities will be limited.
- 14.8.2.13 The receptor is deemed to be of low vulnerability, high recoverability and moderate value. The sensitivity of the receptor is therefore, considered to be **negligible**.

Significance of effect

14.8.2.14 Overall, it is predicted that the sensitivity of the receptor is considered to be **low** and the magnitude is deemed to be **negligible**. As set out in Table 14.9, the effect will therefore be of **negligible adverse** significance, which is not significant in EIA terms.

Decommissioning phase

14.8.2.15 The effects of decommissioning activities are expected to be the same or similar to the effects from construction. As set out in Table 14.9, the effect will therefore be of **negligible adverse** significance (paragraph 14.8.2.8), which is not significant in EIA terms.

14.8.3 Impacts to existing cables or pipelines or restrictions on access to cables or pipelines

14.8.3.1 Construction, operations and maintenance and decommissioning of wind turbines, OSPs and cables may lead to impacts on existing cables and pipelines, or restrictions on access to cables and pipelines. The MDS is represented by the greatest amount of the largest infrastructure and associated minimum spacing and the greatest extent of safety zones, over the longest construction, operations and maintenance and decommissioning phases. This is summarised in Table 14.10.

Construction phase

Magnitude of impact

14.8.3.2 The Morgan Generation Assets have a construction phase of up to four years. The spatial extent of the Morgan Array Area is 322.2km². There is also potential for safety zones to extend 500m beyond this area. The impact of safety zones is mostly reversible as once each structure has been installed and commissioned these will be removed.

14.8.3.3 Up to 1,983 installation vessel movements will be required during construction, with 500m rolling advisory safety zones around cable installation vessels. As stated in section 14.4.2, one active cable intersects the Morgan Array Area. No pipelines overlap with the local other sea users study area.

14.8.3.4 Infrastructure, safety zones and activities associated with the Morgan Generation Assets may restrict access to the Isle of Man Interconnector mentioned above. Cable crossing and proximity agreements as per the ICPC Recommendation 3-10C 'Telecommunications Cable and Oil Pipeline/Power Cables Crossing Criteria' will be established with relevant cable operators and will include the ability of a cable operator to access their infrastructure during the construction of the Morgan Generation Assets as far as practical.

14.8.3.5 The impact is predicted to be of regional spatial extent, short to medium term duration, high frequency and reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **low**.

Sensitivity of receptor

14.8.3.6 Restriction of access to an active cable for inspection and maintenance activities could be critical to the operator of that cable. However, crossing and proximity agreements are common across the UKCS and there are established mechanisms for controlling the level of impact to both parties, in the form of the ICPC Recommendation 3-10C. No active pipelines exist within the local other sea users study area.

14.8.3.7 The receptor is deemed to be of moderate vulnerability, moderate recoverability and high value. The sensitivity of the receptor is therefore, considered to be **medium**.

Significance of effect

14.8.3.8 Overall, it is predicted that the sensitivity of the receptor is considered to be **medium** and the magnitude is deemed to be **low**. As set out in Table 14.9, the effect will therefore be of **minor adverse** significance, which is not significant in EIA terms.

Operations and maintenance phase

Magnitude of impact

14.8.3.9 As described in paragraph 14.8.3.3, one active cable intersects the Morgan Array Area. Infrastructure, safety zones and activities associated with the Morgan Generation Assets may restrict access to this existing cable.

14.8.3.10 Loss of access to cables associated with any temporary safety zones during the operations and maintenance phase is considered to be limited in extent and infrequent. Loss of access to cables associated with the presence of structures would be considered in the crossing/proximity agreements to the extent that such a scenario would not be an impediment to operations.

14.8.3.11 Crossing and proximity agreements will be established with relevant cable operators, to minimise the potential for any impact in accordance with recognised industry best practice. These agreements will ensure close communication and planning between both parties to ensure disruption of activities is minimised.

14.8.3.12 The impact is predicted to be of local spatial extent, short term duration, intermittent and reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be **low**.

Sensitivity of receptor

14.8.3.13 Major maintenance activities associated with the Morgan Generation Assets will be publicised via Notices to Mariners. The terms of the crossing and proximity agreements will ensure communication between both parties and that loss of access is minimised.

14.8.3.14 Restriction of access to an active cable for inspection and maintenance activities could be critical to the operator of that cable. However, crossing and proximity agreements are common across the UKCS and there are established mechanisms for controlling the level of impact to both parties in the form of the ICPC Recommendation 3-10C guidance.

14.8.3.15 The receptor is deemed to be of moderate vulnerability, moderate recoverability and high value. The sensitivity of the receptor is therefore, considered to be **medium**.

	Significance of effect	
14.8.3.16	Overall, it is predicted that the sensitivity of the receptor is considered to be medium and the magnitude is deemed to be low . As set out in Table 14.9, the effect will therefore be of minor adverse significance, which is not significant in EIA terms.	14.8.4.7 The receptor is deemed to be of low vulnerability, moderate recoverability and moderate value. The sensitivity of the receptor is therefore, considered to be low .
	Decommissioning phase	Significance of effect
14.8.3.17	The effects of decommissioning activities are expected to be the same or similar to the effects from construction. As set out in Table 14.9, the effect will therefore be of minor adverse significance (paragraph 14.8.3.8), which is not significant in EIA terms.	14.8.4.8 Overall, it is predicted that the sensitivity of the receptor is considered to be low and the magnitude is deemed to be medium . As set out in Table 14.9, the effect will therefore be of minor adverse significance, which is not significant in EIA terms.
14.8.4	Reduction or restriction of oil and gas exploration activities (including surveys, drilling and the placement of infrastructure) within the Morgan Array Area	Operations and maintenance phase
	14.8.4.1 The construction, operations and maintenance, and decommissioning of wind turbines, OSPs and cables may lead to impacts and restrictions on oil and gas activities within the Morgan Array Area. The MDS is represented by the greatest amount of the largest infrastructure and associated minimum spacing and the greatest extent of safety zones, over the longest construction, operations and maintenance, and decommissioning phases. This is summarised in Table 14.10.	14.8.4.9 The Morgan Generation Assets have an operations and maintenance phase of up to 35 years. 500m safety zones will be established around infrastructure such as wind turbines during periods of major maintenance. Up to 1,256 operations and maintenance vessel movements may be required each year, with up to 107 wind turbines and four OSPs present.
	Construction phase	Magnitude of impact
	Magnitude of impact	
14.8.4.2	The Morgan Generation Assets have a construction phase of up to four years. The spatial extent of the Morgan Array Area is 322.2km ² , which is not large in the context of the east Irish Sea. There is also potential for safety zones to extend 500m beyond this area. The impact of safety zones is mostly reversible as once each structure has been installed and commissioned these will be removed.	14.8.4.10 Due to these vessel movements, the presence of this infrastructure and the safety zones, the area available for seismic surveys, alternative surveys and drilling will be restricted.
14.8.4.3	Up to 1,983 installation vessel movements will be required during construction, with 500m rolling advisory safety zones around cable installation vessels. Up to 107 wind turbines will be installed during construction with a minimum spacing of 1,000m between rows of wind turbines and 875m between wind turbines in a row. Up to four OSPs will also be installed.	14.8.4.11 The impact is predicted to be of local spatial extent, long term duration, continuous and of low reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be medium .
14.8.4.4	As infrastructure is installed, the area available for seismic surveys and drilling will be restricted, and the presence of safety zones around infrastructure and vessels may also further restrict the ability to use certain alternative survey methods.	14.8.4.12 As shown in Figure 14.5, there are three currently licensed blocks within the local other sea users study area. These are blocks 110/2c, 113/26a and 113/27a, all operated by Chrysaor Resources (Irish Sea) Limited. There is also potential for blocks to become licensed in future, for example through the 33rd Oil and Gas Licensing Round, but the assessment of this potential impact is complicated by a degree of uncertainty.
14.8.4.5	The impact is predicted to be of local spatial extent, long term duration, high frequency and reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be medium .	14.8.4.13 The receptor is deemed to be of low vulnerability, moderate recoverability and moderate value. The sensitivity of the receptor is therefore, considered to be low .
	Sensitivity of receptor	Significance of effect
14.8.4.6	As shown in Figure 14.5, there are three currently licensed blocks within the local other sea users study area. These are blocks 110/2c, 113/26a and 113/27a, all operated by Chrysaor Resources (Irish Sea) Limited. There is also potential for blocks to become licensed in future, for example through the 33rd Oil and Gas Licensing	14.8.4.14 Overall, it is predicted that the sensitivity of the receptor is considered to be low and the magnitude is deemed to be medium . As set out in Table 14.9, the effect will therefore be of minor adverse significance, which is not significant in EIA terms.
		Decommissioning phase
		14.8.4.15 The effects of decommissioning activities are expected to be the same or similar to the effects from construction. As set out in Table 14.9, the effect is therefore, considered to be of minor adverse significance (paragraph 14.8.4.8), which is not significant in EIA terms.

14.8.5 Interference with the performance of REWS located on oil and gas platforms

14.8.5.1 The physical presence of wind turbines and OSPs has the potential to interfere with the performance of REWS, through effects such as high radar returns, shadowing (effectively a shadow is cast by the wind turbines which creates a region where the radar beam is unable to fully illuminate an object), increased number of detections and false alarm/track generation. This system is sometimes used by oil and gas operators as an integral part of their anti-collision safety systems for their offshore platforms.

14.8.5.2 During the 35 years of the operations and maintenance phase of the Morgan Generation Assets, up to 107 wind turbines will be present in the Morgan Array Area, with a minimum spacing of 1,000m between rows of wind turbines and 875m between wind turbines in a row. There will also be up to four OSPs. The impact is limited to the operations and maintenance phase as it is when the structures are constructed and operating that the interference is possible.

14.8.5.3 Consultation with stakeholders is ongoing to determine the magnitude of this impact and the sensitivity of receptors. This impact will be fully assessed in the Environmental Statement.

14.8.6 Interference with offshore microwave fixed communication links

14.8.6.1 The physical presence of wind turbines and OSPs within the Morgan Array Area may cause offshore microwave fixed communication links between offshore installations to be unable to provide an effective service.

14.8.6.2 During the 35 years of the operations and maintenance phase of the Morgan Generation Assets, up to 107 wind turbines will be present in the Morgan Array Area, with a minimum spacing of 1,000m between rows of wind turbines and 875m between wind turbines in a row. There will also be up to four OSPs. The impact is limited to the operations and maintenance phase as it is when the structures are constructed and operating that the interference is possible.

14.8.6.3 Consultation with stakeholders is ongoing to determine the magnitude of this impact and the sensitivity of receptors. This impact will be fully assessed in the Environmental Statement.

14.8.7 Future monitoring

14.8.7.1 No other sea users monitoring to test the predictions made within the impact assessment is considered necessary.

14.9 Cumulative Effects Assessment methodology

14.9.1 Methodology

14.9.1.1 The Cumulative Effects Assessment (CEA) takes into account the impact associated with the Morgan Generation Assets together with other projects and plans. The projects and plans selected as relevant to the CEA presented within this chapter are based upon the results of a screening exercise (see volume 3, annex 5.1: Cumulative effects screening matrix of the PEIR). Each project has been considered on a case-

by-case basis for screening in or out of this chapter's assessment based upon data confidence, effect-receptor pathways and the spatial/temporal scales involved.

14.9.1.2 The other sea users CEA methodology has followed the methodology set out in volume 1, chapter 5: EIA methodology of the PEIR. As part of the assessment, all projects and plans considered alongside the Morgan Generation Assets have been allocated into 'tiers' reflecting their current stage within the planning and development process.

14.9.1.3 The tiered approach uses the following categorisations:

- Tier 1
 - Under construction
 - Permitted application
 - Submitted application
 - Those currently operational that were not operational when baseline data was collected, and/or those that are operational but have an ongoing impact
- Tier 2
 - Scoping report has been submitted and is in the public domain
- Tier 3
 - Scoping report has not been submitted
 - Identified in a relevant development plan
 - Identified in other plans and programmes.

14.9.1.4 This tiered approach is adopted to provide a clear assessment of the Morgan Generation Assets alongside other projects, plans and activities.

14.9.1.5 The specific projects, plans and activities scoped into the CEA, are outlined in Table 14.12 and shown in Figure 14.7.

Table 14.12: List of other projects, plans and activities considered within the CEA for other sea users.

Project/Plan	Status	Distance from the Morgan Array Area (km)	Description of project/plan	Dates of construction (if applicable)	Dates of operation (if applicable)	Overlap with the Morgan Generation Assets
Tier 1						
Awel y Môr	Submitted	47.2	Awel y Môr offshore wind farm, planning to comprise up to 50 wind turbines.	Anticipated to commence in 2026	01 January 2030 to 01 January 2055	Project construction phase overlaps with the Morgan Generation Assets proposed construction phase. Project operational phase overlaps with the Morgan Generation Assets proposed operations and maintenance phase.
Tier 2						
Morgan and Morecambe Offshore Wind Farms Transmission Assets	Pre-application	0.0	Morgan and Morecambe Offshore Wind Farms Transmission Assets	01 January 2028 to 31 December 2029	01 January 2030 to 31 December 2065	Project construction phase overlaps with the Morgan Generation Assets proposed construction phase. Project operational phase overlaps with the Morgan Generation Assets proposed operations and maintenance phase.
Mona Offshore Wind Project	Pre-application	5.5	Mona Offshore Wind Project	01 January 2028 to 31 December 2029	01 January 2030 to 31 December 2065	Project construction phase overlaps with the Morgan Generation Assets proposed construction phase. Project operational phase overlaps with the Morgan Generation Assets proposed operations and maintenance phase.
Morecambe Offshore Windfarm Generation Assets	Pre-application	11.2	Morecambe Offshore Windfarm Generation Assets	01 January 2028 to 31 December 2029	01 January 2030 to 31 December 2065	Project construction phase overlaps with the Morgan Generation Assets proposed construction phase. Project operational phase overlaps with the Morgan Generation Assets proposed operations and maintenance phase.
Tier 3						
MaresConnect	Permitted	48.2	MaresConnect is a proposed 750MW subsea and underground electricity interconnector system linking the electricity grids in Ireland and Great Britain.	N/A	N/A	N/A

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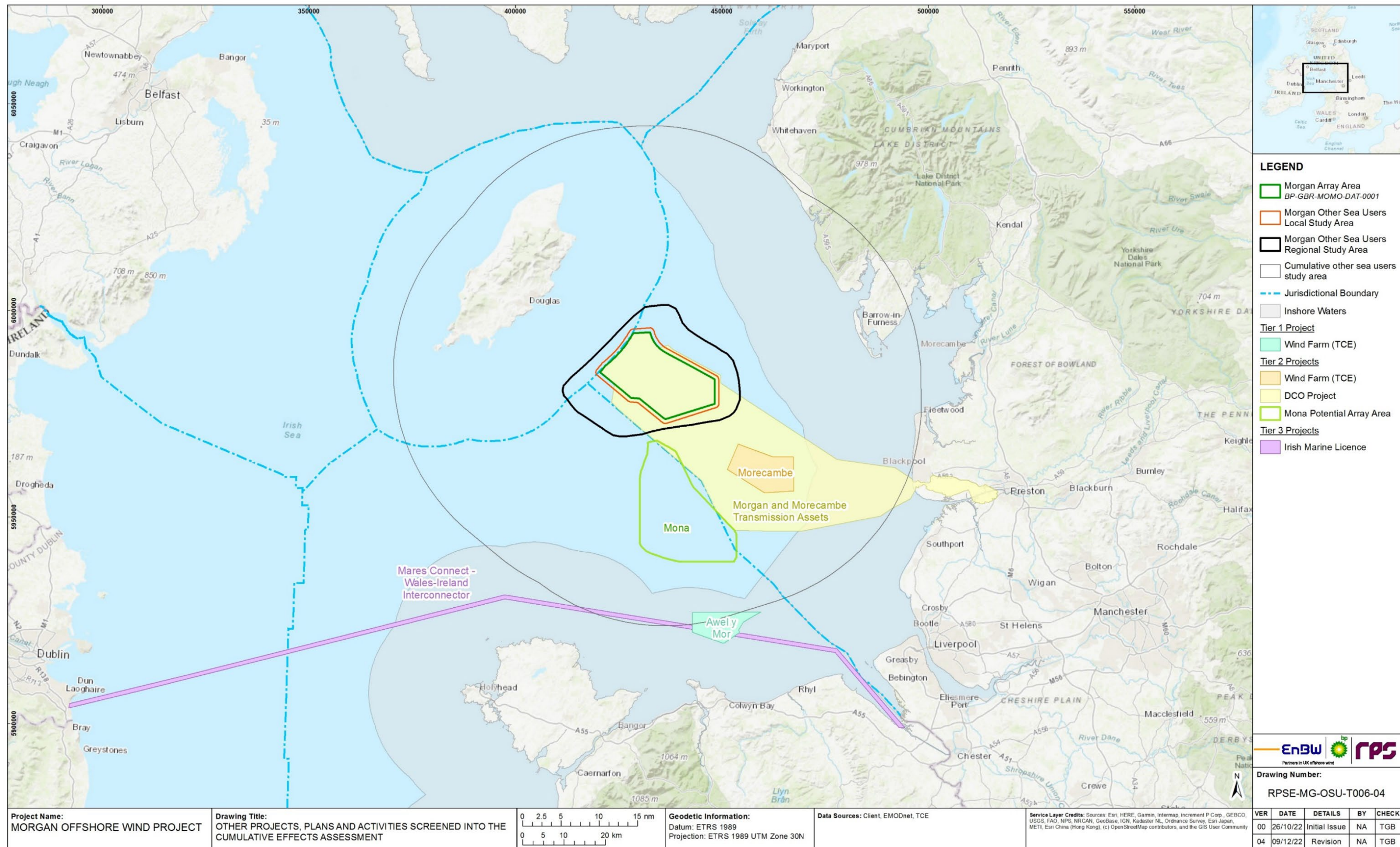


Figure 14.7: Other projects, plans and activities screened into the CEA for other sea users for the Morgan Generation Assets.¹

¹ The Awel y Môr agreement for lease area extends further to the west than the application boundary presented, however Awel y Môr Offshore Wind Farm Ltd. have decided to develop in the area presented.

14.9.2 Maximum Design Scenario

- 14.9.2.1 The MDSs identified in Table 14.13 have been selected as the design options having the potential to result in the greatest effect on an identified receptor or receptor group. The cumulative effects presented and assessed in this section are based on the PDE provided in volume 1, chapter 3: Project description of the PEIR as well as the information available on other projects and plans, in order to inform an MDS. Effects of greater adverse significance are not predicted to arise if the development scenario to be taken forward in the final design scheme is within the PDE.
- 14.9.2.2 The range of potential cumulative impacts identified in Table 14.13 below is a subset of those considered for the Morgan Generation Assets alone assessment (Table 14.10). This is for one of two reasons:
- The potential impacts identified and assessed for the Morgan Generation Assets alone are relatively localised and have limited, or no, potential to interact with similar impacts associated with other projects
 - The potential significance of impact has been assessed as negligible for the Morgan Generation Assets alone and therefore has limited or no potential to interact with similar impacts associated with other projects.
- 14.9.2.3 Of the impacts set out in Table 14.10, the following have not been included in the CEA:
- Displacement of recreational activities is considered to be of negligible adverse effect
 - Impacts to existing cables or pipelines or restrictions on access to cables or pipelines during the operations and maintenance phase is considered to be a localised effect, with no potential to interact with similar impacts associated with other projects
 - Reduction or restriction of oil and gas exploration activities (including surveys, drilling and the placement of infrastructure) within the Morgan Array Area is considered to be a localised effect, with no potential to interact with similar impacts associated with other projects.

Table 14.13: Maximum design scenario considered for the assessment of potential cumulative effects on other sea users.

^a C=construction, O=operations and maintenance, D=decommissioning

Potential cumulative effect	Phase ^a			Maximum Design Scenario	Justification
	C	O	D		
Impacts to existing cables or pipelines or restrictions on access to cables or pipelines	✓	✗	✓	MDS as described for the Morgan Generation Assets (Table 14.10) assessed cumulatively with the following other projects/plans: Tier 1 <ul style="list-style-type: none"> • Awel y Môr. Tier 2 <ul style="list-style-type: none"> • Mona Offshore Wind Project • Morecambe Offshore Windfarm Generation Assets • Morgan and Morecambe Offshore Wind Farms Transmission Assets. Tier 3 <ul style="list-style-type: none"> • MaresConnect. 	Outcome of the CEA will be greatest for the maximum extent of infrastructure and associated construction and decommissioning activities in the vicinity of existing cables or pipelines. Activities from plans and projects in proximity to existing cables and pipelines during the temporal overlap with the Morgan Generation Assets construction and decommissioning phases have been included as these may create a cumulative impact.
Interference with the performance of REWS located on oil and gas platforms	✗	✓	✗	MDS as described for the Morgan Generation Assets (Table 14.10) assessed cumulatively with the following other projects/plans: Tier 2 <ul style="list-style-type: none"> • Mona Offshore Wind Project • Morecambe Offshore Windfarm Generation Assets • Morgan and Morecambe Offshore Wind Farms Transmission Assets. 	Outcome of the CEA will be greatest when the greatest number of other plans and projects are considered in-combination. The maximum number of structures is the MDS.
Interference with offshore microwave fixed communication links	✗	✓	✗	MDS as described for the Morgan Generation Assets (Table 14.10) assessed cumulatively with the following other projects/plans: Tier 2 <ul style="list-style-type: none"> • Mona Offshore Wind Project • Morecambe Offshore Windfarm Generation Assets • Morgan and Morecambe Offshore Wind Farms Transmission Assets. 	Outcome of the CEA will be greatest when the greatest number of other plans and projects are considered in-combination. The maximum number of structures is the MDS.

14.10 Cumulative Effects Assessment

14.10.1.1 A description of the significance of cumulative effects upon other sea users receptors arising from each identified impact is given below.

14.10.1 Impacts to existing cables or pipelines or restrictions on access to cables or pipelines

Tier 1, Tier 2 and Tier 3

Construction phase

Magnitude of impact

14.10.1.1 The magnitude of the impact to existing cables or pipelines or restrictions on access to cables or pipelines during the construction phase has been assessed as minor for the Morgan Generation Assets alone, as described in paragraph 14.8.3.5.

14.10.1.2 The construction phase of the Morgan Generation Assets coincides with the construction phase of Awel y Môr, which will comprise up to 50 wind turbines. However, at 47.2km away from the Morgan Array Area there is a very low chance of a cumulative effect when considered alongside the Morgan Generation Assets.

14.10.1.3 The construction phases of the Mona Offshore Wind Project and the Morecambe Offshore Windfarm Generation Assets, comprising up to 107 and 40 wind turbines respectively, will also overlap with the construction phase of the Morgan Generation Assets. The Mona Offshore Wind Project is 5.5km from the Morgan Array Area, while the Morecambe Offshore Windfarm Generation Assets are 11.2km from the Morgan Array Area. At the same time, construction will be ongoing on the Morgan and Morecambe Offshore Wind Farms Transmission Assets. Infrastructure, safety zones and activities associated with the Morgan Generation Assets may restrict access to cables within the cumulative other sea users study area.

14.10.1.4 The construction phase of MaresConnect, which will connect Ireland and Great Britain, may also overlap with the construction phase of the Morgan Generation Assets. However, similarly to Awel y Môr, the MaresConnect cable is 48.2km away from the Morgan Array Area and therefore a cumulative impact is very unlikely.

14.10.1.5 The impact is predicted to be of regional spatial extent, short to medium term duration, high frequency and reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **low**.

Sensitivity of the receptor

14.10.1.6 The sensitivity of the receptor has been assessed in paragraph 14.8.3.7. It is considered to be **medium**.

Significance of effect

14.10.1.7 Overall, the magnitude of the cumulative impact is deemed to be **low** and the sensitivity of the receptor is considered to be **low**. As set out in Table 14.9, the effect will therefore be of **minor adverse** significance, which is not significant in EIA terms.

The effect has been defined as minor rather than negligible as there will still be a perceptible effect, although it is unlikely to be critical in the decision-making process.

Decommissioning phase

Significance of effect

14.10.1.8 The effects of decommissioning activities are expected to be the same or similar to the effects from construction. As set out in Table 14.9, the effect is therefore considered to be of **minor adverse** significance (paragraph 14.10.1.7), which is not significant in EIA terms. The effect has been defined as minor rather than negligible as there will still be a perceptible effect, although it is unlikely to be critical in the decision-making process.

14.10.2 Interference with the performance of REWS located on oil and gas platforms

14.10.2.1 The physical presence of wind turbines and OSPs may lead to interference with the performance of REWS located on oil and gas platforms. The presence of other infrastructure in-combination with the Morgan Generation Assets may have a cumulative effect on oil and gas platforms with REWS. The impact is limited to the operations and maintenance phase as it is when the structures are constructed and operating that the interference is possible.

14.10.2.2 Consultation with stakeholders is ongoing to determine the magnitude of this impact and the sensitivity of receptors. This impact will be fully assessed in the Environmental Statement.

14.10.3 Interference with offshore microwave fixed communication links

14.10.3.1 The physical presence of wind turbines and OSPs may cause offshore microwave fixed communication links between offshore installations to be unable to provide an effective service. The presence of other infrastructure in-combination with the Morgan Generation Assets may have a cumulative effect on these offshore microwave fixed communication links. The impact is limited to the operations and maintenance phase as it is when the structures are constructed and operating that the interference is possible.

14.10.3.2 Consultation with stakeholders is ongoing to determine the magnitude of this impact and the sensitivity of receptors. This impact will be fully assessed in the Environmental Statement.

14.11 Transboundary effects

14.11.1.1 A screening of transboundary impacts has been carried out and has identified that there was no potential for significant transboundary effects with regard to other sea users from the Morgan Generation Assets upon the interests of other states.

14.12 Inter-related effects

14.12.1.1 Inter-relationships are considered to be the impacts and associated effects of different aspects of the proposal on the same receptor. These are considered to be:

- Project lifetime effects: Assessment of the scope for effects that occur throughout more than one phase of the Morgan Generation Assets (construction, operations and maintenance and decommissioning), to interact to potentially create a more significant effect on a receptor than if just assessed in isolation in these three phases (e.g. underwater sound effects from piling, operational wind turbines, vessels and decommissioning)
- Receptor led effects: Assessment of the scope for all effects to interact, spatially and temporally, to create inter-related effects on a receptor. As an example, all effects on other sea users, such as sediment plumes, may interact to produce a different, or greater effect on this receptor than when the effects are considered in isolation. Receptor-led effects may be short term, temporary or transient effects, or incorporate longer term effects.

14.12.1.2 A description of the likely interactive effects arising from the Morgan Generation Assets on other sea users is provided in volume 2, chapter 20: Inter-related effects (offshore) of the PEIR.

14.13 Summary of impacts, mitigation measures and monitoring

14.13.1.1 Information on other sea users within the local and regional other sea users study areas was collected through consultation and desktop reviews of available datasets.

- Table 14.14 presents a summary of the potential impacts, measures adopted as part of the project and residual effects in respect to other sea users. Overall it is concluded that there will be no significant effects arising from the Morgan Generation Assets during the construction, operations and maintenance or decommissioning phases.
- Table 14.15 presents a summary of the potential cumulative impacts, mitigation measures and residual effects. Overall it is concluded that there will be no significant cumulative effects from the Morgan Generation Assets alongside other projects/plans
- No potential transboundary impacts have been identified in regard to effects of the Morgan Generation Assets.

Table 14.14: Summary of potential environmental effects, mitigation and monitoring.

^a C=construction, O=operations and maintenance, D=decommissioning

Description of impact	Phase ^a			Measures adopted as part of the project	Magnitude of impact	Sensitivity of the receptor	Significance of effect	Further mitigation	Residual effect	Proposed monitoring
	C	O	D							
Displacement of recreational activities	✓	✓	✓	Promulgation of information advising on the nature, timing and location of activities, including through Notices to Mariners, safety zones.	C: Negligible O: Low D: Negligible	C: Negligible O: Negligible D: Negligible	C: Negligible O: Minor adverse D: Negligible	N/A	N/A	N/A
Impacts to existing cables or pipelines or restrictions on access to cables or pipelines	✓	✓	✓	Safety zones, cable and pipeline crossing/proximity agreements, consultation with oil and gas operators.	C: Low O: Low D: Low	C: Medium O: Medium D: Medium	C: Minor adverse O: Minor adverse D: Minor adverse	N/A	N/A	N/A
Reduction or restriction of oil and gas exploration activities (including surveys, drilling and the placement of infrastructure) within the Morgan Array Area	✓	✓	✓	Safety zones, consultation with oil and gas operators.	C: Medium O: Medium D: Medium	C: Low O: Low D: Low	C: Minor adverse O: Minor adverse D: Minor adverse	N/A	N/A	N/A
Interference with the performance of REWS located on oil and gas platforms	✗	✓	✗	Ongoing consultation – to be addressed in Environmental Statement.	O: TBC	O: TBC	O: TBC	TBC	TBC	TBC
Interference with offshore microwave fixed communication links	✗	✓	✗	Ongoing consultation – to be addressed in Environmental Statement.	O: TBC	O: TBC	O: TBC	TBC	TBC	TBC

Table 14.15: Summary of potential cumulative environmental effects, mitigation and monitoring.

^a C=construction, O=operations and maintenance, D=decommissioning

Description of impact	Phase ^a			Measures adopted as part of the project	Magnitude of impact	Sensitivity of the receptor	Significance of effect	Further mitigation	Residual effect	Proposed monitoring
	C	O	D							
Tier 1 and Tier 2										
Interference with the performance of REWS located on oil and gas platforms	✗	✓	✗	Ongoing consultation – to be addressed in Environmental Statement.	O: TBC	O: TBC	O: TBC	TBC	TBC	TBC
Interference with offshore microwave fixed communication links	✗	✓	✗	Ongoing consultation – to be addressed in Environmental Statement.	O: TBC	O: TBC	O: TBC	TBC	TBC	TBC
Tier 1, Tier 2 and Tier 3										
Impacts to existing cables or pipelines or restrictions on access to cables or pipelines	✓	✗	✓	Safety zones, cable and pipeline crossing/proximity agreements, consultation with oil and gas operators.	C: Low D: Low	C: Medium D: Medium	C: Minor D: Minor	N/A	N/A	N/A

14.14 Next steps

14.14.1.1 Further consultation is required to refine the impacts on oil and gas operators. This consultation shall continue during the preparation of the Environmental Statement such that the most up to date information can be used within the assessments.

14.15 References

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