Liverpool Bay CCS Ltd

HYNET CARBON DIOXIDE TRANSPORTATION AND STORAGE PROJECT - OFFSHORE

Environmental Statement
Chapter 3, appendix B: Scoping Opinion

EHE7228B
Liverpool Bay CCS Limited
Final
February 2024
Scoping Opinion

rpsgroup.com

Document status					
Version	**Purpose of document**	**Authored by**	**Reviewed by**	**Approved by**	**Date**
FINAL	Final	RPS	Eni UK Ltd	Eni UK Ltd	February 2024

Prepared by:

RPS

Prepared for:

Liverpool Bay CCS Limited

Offshore Petroleum Regulator
for Environment & Decommissioning

ES/2022/009

Department for Business, Energy & Industrial Strategy

Offshore Petroleum Regulator for Environment & Decommissioning
AB1 Building
Wing C
Crimon Place
Aberdeen
AB10 1BJ

Tel +44 (0)1224 254007
Fax +44 (0)1224 254019

www.beis.gov.uk
EMT@beis.gov.uk

Mr Donald Smith
Liverpool Bay CCS Limited
Eni House,
10 Ebury Bridge Road,
London
SW1W 8PZ

27th January 2023

Dear Donald

Scoping Opinion in relation to the HyNet Carbon Dioxide Transportation and Storage Project - Offshore

On 30th September 2022 OPRED received a request from Liverpool Bay CCS Limited (the "Developer") for a scoping opinion in respect of the Environmental Statement (ES) for the Hynet Carbon Dioxide Transportation and Storage Project - Offshore (the "Project") pursuant to Regulation 9(1) of the Offshore Oil and Gas Exploration, Production, Unloading and Storage (Environmental Impact Assessment) Regulations 2020 ("EIA Regulations").

As required by Regulations 9(3) and 9(4) of the EIA Regulations, OPRED has notified the authorities which it considers would be likely to be interested in the Project by reason of either their environmental responsibilities or their local or regional competence and has requested their views on the scope and level of detail to be included in the ES for the Project. The authorities consulted include Cefas, JNCC, Marine and Coastguard Agency (MCA), Marine Management Organisation (MMO), Ministry of Defence (MoD), Natural England (NE), Natural Resources Wales (NRA), North Sea Transition Authority (NSTA) and Trinity House (TH).

In accordance with Regulation 9(5) of the EIA Regulations, this scoping opinion takes account of the information provided by the Developer and the views expressed by the consulted authorities regarding the proposed ES. In line with our obligations under Regulation 9(6) of the EIA Regulations, the scoping opinion for the Project's ES is set out in Annex 1 of this letter and is split into the following sections:

1. Summary of Main Points
2. Advice on ES Scoping
3. Detailed Comments

In addition to the scoping opinion, we have provided links to additional sources of information which we consider to be useful or pertinent to the ES. These can be found in Annex 2 to this letter.

You are reminded that, pursuant to Regulation 9(7) of the EIA Regulations, any ES which is submitted for the Project must be based on the enclosed scoping opinion.

We look forward to receiving a copy of the formal ES for the Project in the future.

Yours sincerely

Dr Julie Cook
Environmental Manager
The Offshore Petroleum Regulator for Environment and Decommissioning
For and on behalf of the Secretary of State for Business, Energy and Industrial Strategy

Annex 1

Scoping Opinion pursuant to Regulation 9 of the Offshore Oil and Gas Exploration, Production, Unloading and Storage (Environmental Impact Assessment) Regulations 2020

HyNet Carbon Dioxide Transportation and Storage Project - Offshore

1. Summary of Main Points

a) Approach to ES Scoping:

- The ES Scoping report provided is high level and environmental surveys in support of the intended ES submission are still to be collected, it is therefore difficult to provide targeted advice on the scope of the ES at this stage.

- Without knowing the outcome of these environmental surveys, it is not possible to confirm with a high level of confidence that the surveys proposed will be sufficient to support the assessment of the environmental effects of the Project's activities as outlined in the ES scoping report. Additional information and detail may therefore be required in the ES to demonstrate all the environmental effects have been considered.

- The ES scoping report refers to the North Sea Transition Authority (NSTA) Licence which covers an area located within the Liverpool Bay area of the East Irish Sea. It would be beneficial to confirm the Licence Blocks and Subareas where the planned activities will be undertaken so that more localised analysis can be undertaken.

- The Developer should ensure that the introduction to the ES includes details of what infrastructure will be re-purposed and what new infrastructure is intended to be installed for the Project, including confirming the location of the planned activities (e.g. what activities will be located in English or Welsh waters, and which regulatory authority will oversee the authorisation of those activities).

- In the scoping report, the physical process study area is defined as the area encompassing the development area, plus a buffer zone of one tidal excursion – being 8 km around the development area. This illustrates the areas which the Developer considers will be potentially affected by the changes in water quality. Clarification is requested on the assumptions and data that have been used to calculate this 8 km buffer zone. It is advised that the maximum spring tidal excursion should be used to define the zone of influence. The tidal excursion is likely to vary from offshore to inshore and should therefore be factored into defining the zone of influence for physical processes.

- Whilst not licensed by OPRED, it is advised that the following activities stated within the Proposed Development Description should be scoped into the assessment for the Project: the potential for cable protection along the cable corridor; the use of concrete mattresses across three potential cable crossings; and the potential protection of the Horizontal Directional Drilling exit pits located in the intertidal zone.

b) Application Process and Cumulative Assessment:

- The complexity that is brought about through having multiple applications with different regulatory bodies (BEIS, The Planning Inspectorate and Local Planning Authorities) is highlighted in the ES scoping report. To ensure that all of the relevant cumulative and in-combination aspects of the Project outlined in the ES scoping report are fully considered, it would be beneficial to provide information on the timing of the proposed activities and the subsequent environmental effects. Whilst the potential consents and environmental legislation have been summarised in *Section 2.4: Planning Consents and Environmental Legislation*, it would be useful to clarify the required approvals for the offshore works.

- Associated elements of the wider HyNet Carbon Dioxide Transportation and Storage project are likely to be considered as part of the cumulative and in-combination effects of the offshore Project. The ES should therefore demonstrate consideration of the wider HyNet Carbon Dioxide Transportation and Storage project when assessing the environmental effects of the offshore elements of the Project.

c) Best Practice Advice for Evidence and Data Standards:

- When completing the ES, the Developer should make use of the guidance document called 'Nature conservation considerations and environmental best practice for subsea cables for English Inshore and UK offshore waters'. This has been jointly developed by Natural England and JNCC in collaboration with the European Subsea Cable Association and provides high level advice on the main pressures, sensitive habitats and best practice for subsea cables. It is currently stored on a Natural England's SharePoint Online site for which access needs to be requested from neoffshorewindstrategicsolutions@naturalengland.org.uk. You should allow up to three working days for access to the site to be granted.

2. Advice on ES Scoping

We have provided details regarding what should be included in the ES but, as a minimum, the Developer is expected to comply with Regulation 8 of the EIA Regulations and ensure that the information set out in Schedule 6 is included in the Environmental Statement (ES).

a) Cumulative and In-combination Effects:

- The ES should identify, describe and evaluate the environmental effects that are likely to result from the Project in combination with other major developments and activities that are being, have been or will be carried out in the vicinity of the Project, for example other oil and gas developments, offshore wind and dredging activities. In particular (subject to the available information) the following types of project should be factored in:

  i. Existing completed projects;
  ii. Approved but incomplete projects;
  iii. Ongoing activities;
  iv. Plans or projects for which an application has been made and which are under consideration by the consenting authorities (i.e. scoping projects);
  v. Plans and activities which are reasonable foreseeable (i.e. projects for which an application has not yet been submitted but are likely to progress before completion of the Project and for which sufficient information is available to assess the likelihood of cumulative and I in combination effects).

c) Environmental Data:

- All relevant environmental data is expected to be sourced, analysed and presented in relation to the Project. A non-exhaustive list of potential sources of environmental information is provided in Annex 2 but the Developer is expected to consult such other sources as it considers necessary.

- Relevant local environmental data should also be sourced from the appropriate local bodies which may include local environmental records centre, the local wildlife trust, local geo-conservation groups or other recording societies.

d) Biodiversity and Geodiversity:

i) Important Nature Conservation Sites

- The ES should assess the environmental effects of the Project upon features of nature conservation interest. It is recommended that the ES thoroughly assesses the potential for the Project to affect national or international sites of nature conservation importance. This should

include a full assessment of the direct and indirect effects of the Project on the features of all important nature conservation sites including, but not limited to, Natural England's Impact Risk Zones, Sites of Special Scientific Interest (SSSI), Marine Conservation Zones (MCZ) and Designated Sites with Fish and Shellfish Qualifying Features. Further website information on these sites and how this may be accessed is provided in Annex 2. In particular, it is noted that the following Welsh sites have been omitted in Table 7-7 (Designated Sites with Fish and Shellfish Qualifying Features) of the ES scoping report:

- Dee Estuary SAC, designated for river and sea lamprey.
- River Dee and Bala lake SAC, designated for Atlantic salmon, river and sea lamprey.
- Afon Gwyrfai a Llyn Cwellyn SAC, designated for Atlantic salmon.
- Afon Eden SAC - Cors Goch Trawsfynydd, designated for Atlantic salmon and Freshwater peal mussel.
- River Teifi SAC, designated for Atlantic salmon, river and sea lamprey

ii) Protected Species – Species protected by the Wildlife and Countryside Act 1981 (as amended) and by the Conservation of Habitats and Species Regulations 2017 (as amended)

- The Developer is advised to ensure that the ES appropriately assesses the impact of all phases of the Project (I.e. construction, operation, maintenance and decommissioning) on protected species including, for example: pinnipeds, cetaceans, fish, marine turtles, birds, marine invertebrates, bats etc. Information on the relevant legislation protecting these species can be found at https://www.gov.uk/government/publications/protected-marine-species

- It is advised that records of protected species are sought from the appropriate local biological record centres, nature conservation organisations and NBN Atlas (https://nbnatlas.org/). It is also advised that consideration should be given to the wider context of the location of the Project, in terms of habitat linkages and protected species populations in the wider area to assist the impact assessment.

c) Designated Landscapes/Seascape Character

a) Landscape and visual impacts:

- It is advised that details of local landscape and seascape character areas (mapped at a scale appropriate to the Project's site) and any relevant management plans or strategies pertaining to the area are included. The ES should include assessments of visual effects of the Project (such as landscape and seascape) together with any physical effects (such as changes in topography).

- It is advised that the ES includes an assessment of the potential impacts of the Project on local landscape character using the methodology outlined within the landscape and seascape Character assessment (LCA/SCA) which is almost universally used for landscape and visual impact assessment. It is also advised that this assessment includes effects of the special qualities of the designated landscape as set out in the statutory management plan for the area. Guidance for the LCA/SCA and further information relating to National Character Areas is provided in Annex 2.

3. Detailed Comments

A. Physical Processes

Key Issues:

- There is currently a lack of clarity on the type and whereabouts of seabed preparation activities which may be undertaken during the early development stages of the Project and the Developer is therefore requested to provide further details within the ES. In addition, under *Section 1.2: Proposed Development Description,* there are several activities that have been omitted from the scoping of potential impacts, in particular: the potential for cable protection along the cable corridor; the use of concrete mattresses across three potential cable crossings; and the potential to protect the Horizontal Directional Drilling (HDD) exit pits located in the intertidal zone.

- The presence of cable protection may alter the current and wave regime and alter the sediment transport pathways, particularly if located in shallow water. Consideration should also be given to the potential for secondary scour. A recent study considering options of scour and cable protection is available at http://nepubprod.appspot.com/publication/5938793965420544

- Further information on the presence of any sand wave features in the area, including sand wave height, length and migratory rate should be included in order to further understand the potential impacts. Although the Project does not involve dredging, clarification is required on whether any sand wave clearance will take place as part of the cable laying activities. Should sand wave clearance be required then consideration should be given to the potential impacts on the seabed bed morpho-dynamics (i.e. sand banks and migrating sand wave fields).

- Stratification influences the hydrodynamic and sediment transport regimes within Liverpool Bay and it is recommended that the impact assessment for the Project should consider the effects of stratification on sediment transport within the development area, with particular emphasis on the seasonal variability in impacts.

- Furthermore, whilst physical processes can be considered to be a pathway for various types of receptors it can also be considered to be a receptor in its own right (e.g. sand bank features, beaches and coast), and it is therefore recommended that Physical Processes are treated as a separate chapter of the ES with any cross links between chapters clearly indicated.

Detailed Comments:

- It is advised that a conceptual understanding of the baseline environment for physical processes is established so that the potential impacts caused by the activities resulting from the Project can be properly assessed. It is recommended that NRW's Marine Physical Processes Guidance is used to inform the ES when conducting the proposed site surveys detailed in *Section 1.2: Proposed Development Description.*

- It is recommended that the British Oceanographic Data Centre (BODC) and iMarDIS SEACAMS data portal is included in the desktop data sources outlined in *Table 6-1: Summary of Key Desktop Data Sources to Inform the Physical Processes Scoping Assessment.*

- *Section 6.2.2.1: Desktop Study*. Physical processes are considered to be a pathway for other receptors, whilst also being a receptor in their own right (e.g. sand bank features, beaches and coast). The strong links between water quality and suspended sediment concentration (SSC) are recognised, however, it is recommended that physical processes are treated within a separate chapter, with any cross-linkages between chapters clearly signposted.

  Section 6.2.3: Potential Project Impacts:

- Activities relating to cable protection measures should be scoped in for the construction, operation, and maintenance phases of the Project. *Section 1.2: Proposed Development Description* states that the Project proposes to use concrete mattresses and external cable protection for crossings of existing cables and areas where trenching is not possible. The presence of cable protection on the seabed has the potential to alter the water depth, current/wave regime and has the potential to interrupt the bedload sediment transport pathways. The presence of cable protection in the nearshore and intertidal zone will potentially refocus wave energy to different points along the

coast, which may lead to coastal erosion. Consideration should also be given to the potential for the development of scour.

- There may be the potential for the exit pits from Horizontal Directional Drilling (HDD) to be located within the intertidal between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS). Clarification is sought as to whether the exit pits will require rock armour protection, as any surface protection within the intertidal will directly interrupt the alongshore sediment transport pathways and alter the current and wave regime, potentially causing impacts to the beaches and coast downstream.

- It is stated that '*Construction activities conducted near the shoreline (e.g., trenching for the cable route) could impact water quality in proximity to the coastline through increased SSC which could then impact the local tidal regime and wave climate'*. The Developer should ensure that the ES provides clarification on how (and to what extent) suspended sediment concentrations can impact the local tidal regime and wave climate and provide details of any proposed mitigation measures.

Section 6.2.4: Proposed Assessment Methodology:

- The Dee is a Region of Freshwater Influence (ROFI) which modulates the levels of stratification in the Liverpool Bay area. Therefore, this section should consider the impacts of stratification on sediment transport within the development area, with particular emphasis on the seasonal variability in impacts.

- Appropriate validation and calibration of any sediment dispersal / transport model is also requested and reference to Natural Resources Wales Marine Physical Processes Guidance to inform Environmental Impact Assessment (EIA) is also recommended.

B. Marine Water and Sediment Quality and WFD

Key Issues:

- The inclusion of water and sediment quality in various chapters is acknowledged. However, it is recommended that Marine Water and Sediment Quality are included as separate topics and are assessed as such.

- Increases in suspended sediment concentrations (SSC) during construction and operation of the Project (e.g. future dredging work) have the potential to smother sensitive habitats. It is therefore advised that the ES includes information on the sediment quality and the potential for any effects on water quality through suspension of contaminated sediments. The ES should also consider whether increased SSC have the potential to impact upon interest features and supporting habitats of any designated sites.

- The following potential impact pathways for marine water and sediment quality which are not currently scoped-in but which will require further consideration have been identified: bacterial release from sediments due to the proximity of designated bathing and shellfish waters; pipeline contents temperature effects; and impacts to Dissolved Oxygen and Phytoplankton as a result of elevated suspended sediment concentrations.

Detailed Comments:

- *Section 6.2.2.1: Desktop Study* provides background information for *Sediment Quality and Contamination*, however, no background information has been provided for water quality. It is recommended that this is included.

- It is advised that accidental releases during maintenance operations are also considered in *Table 6-2: Impacts Proposed to be Scoped into the Assessment for Physical Processes*.

- Should trenching take place in the intertidal area, it is advised that bacterial release from sediments is assessed due to the potential proximity to designated bathing and shellfish waters.

- Potential increased temperature effects from the pipeline contents should be considered as part of the marine water and sediment quality assessment.

- As a result of elevated suspended sediment concentration as a result of the activities it is advised that impacts to dissolved oxygen (DO) and phytoplankton are assessed.

- Whilst water quality is incorporated into the physical processes heading, the mitigation measures associated with water quality have not been clearly outlined. It is recommended that mitigation measures such as the Code of Construction Practice, Environmental Management Plan and Marine Pollution Contingency Plan are included, although it is noted that two of these are included elsewhere in *Section 5.3.3.2: Mitigation Measures - Tertiary Inexorable Mitigation*.

- It is advised that nearshore works are undertaken outside of the Bathing Season (15th May to 30th September) to avoid risks to bathers associated with contaminant releases.

- It is unclear how marine water and sediment quality will be assessed other than through a numerical model which will show where suspended sediments will travel. Further detail is required for this topic, for example:

    i. how will the potential increase in pipeline content temperature, release of contaminated sediment, potential bacterial releases, and impacts on DO and phytoplankton be assessed?
    ii. Has or will contaminated sediment sampling be undertaken in the area of the Project?

- Section 5.2: Contaminant Analysis in Appendix B, appears to include details of potential contaminated sediment sampling. It is advised that contaminated sediment concentrations are compared to the Centre for the Environment, Fisheries and Aquaculture Science (CEFAS) action levels, and that further sampling may be required at the landfall location to assess the potential of bacterial release from the sediment.

- It is recommended that, when assessing cumulative impacts to marine water quality, onshore works relating to the Project are also taken into consideration alongside the offshore element of the Project.

- Since the UK has left the European Union, *Section 2.5.2: The Water Framework Directive (WFD) Regulations*, should make reference to the Water Environment Regulations. It is recommended that the Environment Agency's "Clearing the Waters for All" WFD guidance is consulted as it forms a useful basis for performing a WFD assessment.

C. Air Quality and Climate Change Adaptation

- The ES should take account of the risks of air pollution from the Project and how these can be managed or reduced. Further details on the Air Pollution Information System and air pollution modelling and assessment can be found in Annex 2.

- The England Biodiversity Strategy published by Defra establishes principles for the consideration of biodiversity and the effects of climate change. It is recommended that the ES reflects the principles outlined in this strategy and should aim to identify the effect of the development on climate change and how ecological networks will be maintained. Details of further available information regarding air quality and climate change adaption is provided in Annex 2.

D. Benthic Subtidal and Intertidal Ecology

<u>Key Issues:</u>

- With respect to the impacts proposed to be scoped into the ES, the introduction of artificial habitat and colonisation of hard structures should not be considered beneficial.

- Impacts resulting from the release of sediment bound benthic contaminants should be scoped in and assessed for the operational phase.

- The footprint of area affected by cables and cable protection and potential impacts from scour and secondary scour from the use of cable protection and mattresses on benthic habitats during the operational phase should be scoped into the ES.

- It is recommended that impacts to benthic ecology due to electromagnetic fields (EMF) is scoped into the ES and that an estimation of EMFs potentially arising from cables (both at exterior and at surface of seabed above buried cables) is scoped in at this stage.

- Details of the footprint area affected by any installation vessels should be includedt.

Detailed Comments:

- *Table 7-1: Summary of key desktop data sources to inform the benthic subtidal and intertidal ecology scoping assessment*. Data from the Gwynt y Mor Year 1 and 2 Post Construction Monitoring Surveys are now available and should be used to inform any future assessments.

- The distance of the offshore elements of the Project to the Dee Estuary SPA and SAC is stated as 12km in *Table 7-2: Illustrates the UK Designated Sites within the Regional Benthic Subtidal and Intertidal Ecology Study Area relevant to Benthic Subtidal and Intertidal Ecology Receptors*. However, it is noted that a section of the Power and Fibre-Optic Cable from the Point of Ayr to the Douglas Platform falls within the Dee Estuary SAC, and so the distance should be revised to account for this.

- Table 7-2. The following Annex I habitats that are also present as a qualifying feature of *Menai Strait and Conwy Bay SAC,* should be included in the table even though they are not a primary reason for selection of the site: Large shallow inlets and bays; and submerged or partially submerged sea caves.

- Table 7-3: *Impacts Proposed to be Scoped into the Assessment for Benthic Subtidal and Intertidal Ecology,* please note the following recommendations*:*

  i. *Increased suspended sediment concentrations and associated deposition* – it is recommended that this potential impact is scoped in during the operational phase for activities related to cable repair and/or removal. This has been included in *Table 6-2: Impacts Proposed to be Scoped into the Assessment for Physical Processes,* but not in the Benthic subtidal and intertidal habitats section.

  ii. *Introduction of artificial habitat and colonisation of hard structures* – Introduction of hard substrate in a sedimentary environment should not be considered beneficial as this is a change in habitat type from a traditionally sedimentary habitat to a hard substrate. It should also be noted that the introduction of hard substrates may act as a stepping-stone for the introduction of invasive non-native species, which is not currently scoped into the assessment. It is advised that the above points are scoped in and assessed.

  iii. *Impacts resulting from the release of sediment bound benthic contaminants* – As noted in *Table 6-2: Impacts Proposed to be Scoped into the Assessment for Physical Processes*, operation and maintenance activities could cause toxicity effects through mobilisation of contaminated sediment during cable repair activities, which could impact the surrounding benthic communities. This impact should therefore be scoped in for the operational phase of the Project.

iv. Potential impacts from scour and secondary scour from the use of cable protection and mattressing on benthic habitats during the operational phase of the Project should be scoped in and assessed.

v. *Long-term subtidal habitat loss* – Currently long-term subtidal habitat loss is only predicted to occur directly under the newly installed cable route with rock armour / protection in place. Confirmation that no additional long-term habitat loss is expected from the other activities highlighted in *Section 3.5: Offshore Construction Phase* is requested.

vi. *Long-term subtidal habitat loss* – It is noted that no long-term habitat loss is predicted to occur within the intertidal zone. However, *Section 3.5: Offshore Construction Phase - Installation Method* states that the HDD pit will be located between MHWS and MLWS. Confirmation that no cable protection is proposed at the HDD outfall pit is therefore requested.

- *Table 7-4: Impacts Proposed to be Scoped out of the Assessment for Benthic Subtidal and Intertidal Ecology.* It is advised that impacts to benthic ecology due to EMF are scoped into the ES. Some evidence has shown that EMFs affect crustacea behavioural patterns which would potentially include certain species under Section 7 of the Environment (Wales) Act 2016 (e.g. Crawfish *Palinurus elephas)*. As Section 7 habitats and species have not been incorporated into the current scoping document, it is not possible to scope out these elements without further assessment.
- *Section 7.2.6: Proposed Assessment Methodology*, it is advised that the following sources are used when carrying out the assessments: MarLIN and Marine Pressures-Activities Database (PAD) v 1.5 | JNCC Resource Hub. Weblinks to these are provided in Annex 2.
- The potential impacts scoped into *Table 7-3: Impacts Proposed to be Scoped into the Assessment for Benthic Subtidal and Intertidal Ecology*, should also be scoped into the ES and assessed under *Section 7.2.6.1: Cumulative effects*.
- *Section 7.2.7: Potential Mitigation*, where it states '*Compliance with available guidance on mitigating the introduction and spread of INNS*', we advise that a full Biosecurity Risk Assessment and Invasive Non-Native Species (INNS) Management Plan is completed in relation to all marine operation activities associated with the Project. The risk assessment and management plan should include consideration of all activities, vehicles and equipment used as well as how the risk will be minimised through appropriate mitigation and adherence to best-practice guidance and management measures. The risk assessment should include a review of all the available data in relation to the presence of marine INNS where applicable to the Project, and the potential risks associated with each species identified.

E. Fish and Shellfish Ecology

Key Issues:

- Key protected sites for diadromous fish in Wales have been omitted.
- It is recommended that potential impacts of Electromagnetic Fields (EMF) from the cables are scoped into the assessment for fish and shellfish receptors.

Detailed Comments:

- *Section 3.4.1.1: Pipeline Contents Temperature Increase*, the intention to undertake further studies to understand the effects of heat from the Project is noted. It is advised that the potential effects on fish receptors are also considered and that this impact is scoped into the assessment for fish and shellfish receptors.
- *Section 3.5: Offshore Construction Phase - Offshore Power and Fibre Optic (FO) Cables.* Clarification regarding the target cable burial depth is requested. It is advised that, if a minimum

cable burial depth cannot be met due to ground condition, the cable should (generally) be protected by rock armouring in order to reduce the risk of navigational hazards.

- As fish features have been included in other designated sites listed within *Table 7-2,* it is advised that the Dee Estuary SPA and SAC are also designated for sea and river lamprey.

- *Table 7-5: Summary of Key Desktop Data Sources to Inform Fish and Shellfish Ecology Scoping Assessment.* It is recommended that the following reports are included:

    i. Campanella, F. & van der Kooij, J. (2021). Spawning and nursery grounds of forage fish in Welsh and surroundings waters. Cefas Project Report for RSPB, 65 pp.

    ii. van der Kooij, J., Campanella, F., Rodríguez Climent, S., (2021). Pressures on forage fish in Welsh Waters. Cefas Project Report for RSPB, 35 pp.

- *Section 7.3.2.1: Desktop Study - Fish Assemblages*. It is noted that the pelagic fish species list includes Twaite and Allis shad, which are anadromous and should therefore be included in the migratory fish grouping. Both species are listed under Section 7 of the Environment (Wales) Act 2016, and rivers and estuaries which support spawning populations are designated as National Network Sites (formerly European Sites).

- *Section 7.3.2.1: Desktop Study - Fish Assemblages*. The gadoid fish species (ling, whiting, cod, and haddock) which are grouped with the pelagic species should be considered as demersal fish species, subgroup benthopelagic.

- *Table 7-8: Impacts Proposed to be Scoped into the Assessment for Fish and Shellfish Ecology.* It is advised that 'increased temperature impacting benthic and marine communities' is included in the potential impact pathways for fish and shellfish receptors.

- *Table 7-9: Impacts proposed to be scoped out of the Assessment for Fish and Shellfish Ecology*. It is advised that potential impacts from electromagnetic fields (EMF) are scoped into the assessment for fish and shellfish receptors. Whilst it is likely that potential impacts from EMF can be scoped out following suitable mitigation (e.g. cable burial / rock armouring), there is some evidence to suggest that EMF may affect fish / shellfish populations, for example: Cresci *et al*., (2022) and Harsanyi *et al*., (2022). This may include certain species under Section 7 of the Environment (Wales) Act 2016 (e.g. Crawfish *Palinurus elephas)*.

F. Marine Mammals

Key Issues:

- The rationale of using a regional study area for scoping of Special Areas of Conservation (SAC) is not considered to be appropriate because the Annex II marine mammal SAC features are mobile and wide ranging. The Marine Mammal Management Unit (MMMU) is the appropriate scale for consideration of offsite impacts for marine mammals. Giving greater weight to the use of MMMUs for assessing abundances enables consideration of marine mammal populations over a greater period of time, whereas the SCANS III data is a snapshot of one day and therefore does not account for seasonality of population trends over time.

- It is recommended that the Joint Cetacean Protocol (JCP) and its successor, the Joint Cetacean Data Programme (JCDP) are utilised to a greater extent, including the use of the main portal as opposed to reports arising from it.

- It is recommended that the potential effects from Unexploded Ordnance (UXO) noise should be scoped in for assessment during the construction phase.

- It is recommended that the risk of an accidental event occurring during the construction, operation and maintenance phases of the Project that may impact marine mammals is scoped into the assessment.

- Based on the information provided on the expected operational noise source levels, it is advised that operational noise should be scoped into the assessment.

Detailed Comments:

- Section 7.4.1: Study Area. The wider regional Marine Mammal Study Area, is not in line with Welsh Marine Mammal Management Units (MMMU), as outlined in NRW's position on the use of Marine Mammal Management Units for screening and assessment in Habitats Regulations Assessments for Special Areas of Conservation with marine mammal features (NRW, 2022). Encompassing only the wider Irish sea habitats will not include all relevant areas for harbour porpoise, bottlenose dolphin, and grey seal. The Inter-Agency Marine Mammal Working Group (IAMMWG) management units for other cetacean species in UK waters (i.e. minke whale, common dolphin, Risso's dolphin (JNCC, 2015)) should also be considered.

- *Section 7.4.2.1: Desktop Study*. Where it states: '*Findings from the Special Committee on Seals (SCOS) estimated total UK harbour seal minimum populations around Wales and Northern Ireland to be <10 and 1,000 individuals respectively (SCOS, 2021). Comparatively, grey seal breeding populations in Northern Ireland and Wales have been estimated to be between 5,000 and 7,000 individuals respectively (ENI, 2021).*' It is noted that the information in SCOS, 2021 estimates the Welsh harbour seal population to comprise of 13 individuals (Table 6 of SCOS, 2021).

- It is recommended that, in Welsh waters, the appropriate MMMU for grey seals (OSPAR Region III Area, (NRW, 2022)) should be used for screening and assessment in Habitats Regulations Assessments for Special Areas of Conservation with marine mammal features (NRW, 2022).

- The Pembrokeshire Marine SAC designated for grey seal has not been included in *Table 7-16: Illustrates the Designated Sites with Qualifying Features related Marine Mammal Ecology* and should be included. The Special Areas of Conservation (SACs) designated for Harbour Porpoise are seasonal and will have higher densities of porpoises at certain times of year.

- The use of a Regional Marine Mammal Study area does not include all relevant Marine Mammal SACs in Welsh MMMUs and it is therefore recommended that SACs based on Welsh MMMUs are scoped into the assessment.

- *Table 7-17: Impacts Proposed to be Scoped into the Assessment for Marine Mammal Ecology*. It is noted that injury has been scoped into the assessment, however, no reference is made in the table to geophysical surveys. It is therefore recommended that this impact pathway for noise is considered in the assessment.

- *Table 7-18: Impacts Proposed to be Scoped out of the Assessment for Marine Mammal Ecology.* Please note the following recommendations:

  i. It is recommended that the effect of subsea noise from Unexploded Ordnance (UXO) detonation is scoped into the assessment. The provision of further information to support the assumption of a low likelihood of encountering UXOs, or confirmation on whether a separate Marine Licence application will be applied for if clearance is recommended. Should UXOs be found during construction, a full impact assessment including a noise assessment to consider injury and disturbance to marine mammals will be required to support the licence application. A detailed marine mammal mitigation plan will also be required to support any future licence application.

  ii. Further evidence is required to support the decision to scope out operational noise. Whilst source levels may be sufficient to support this conclusion, further information should be provided on the expected operational noise.

iii. Where seismic surveys may be required, they should be considered as a potential impact pathway to marine mammals and scoped into the assessment to ensure that the worst-case scenario is considered.

- *Section 7.4.5: Proposed Assessment Methodology* – When considering the potential impacts of the construction, operation, and maintenance phases of the development on marine mammals the Developer is also recommended to consider the paper 'Thresholds for behavioural responses to noise in marine mammals (Tougaard, 2021)' which discusses the potential impact of noise through disturbance.

G. Marine Ornithology

Detailed Comments:

- *Table 7-20: Mean max foraging ranges with standard deviation (SD) for seabird species.* The use of Woodward et al 2019 mean max plus 1 standard deviation foraging ranges is welcomed. It is advised that breeding season foraging ranges for razorbill and guillemot are those within appendix 1 of Woodward et al 2019 which excludes data from Fair Isle where the foraging range may have been unusually high due to reduced prey availability during the study year. Therefore, the foraging range to use for razorbill is 73.8km + 48.4km and for guillemot is 55.5km + 39.7km.

- *Section 7.5.3 and Section 7.5.4.* Consideration should be given as to whether seabird surveys of the platform will be required to ascertain if nesting and/or roosting seabirds are (or have been) using the structures. JNCC have generated an advice note on Seabird Survey Methods for Offshore Installations: Black-legged kittiwakes including example offshore installation seabird survey recording forms and a black-legged kittiwakes information and resources signposting document which may be useful for seabird surveys of offshore platforms. Consideration should also be given to the anthropogenic disturbance and displacement of Red-Throated Diver and Common Scoter which are features of Liverpool Bay SPA, and which are also included as a priority species in Section 7 of the Environment (Wales) Act 2016. Both species are sensitive to anthropogenic disturbance and displacement. Details of where further information can be found on this is provided in Annex 2.

- *Table 7-22: Impacts Proposed to be Scoped into the Assessment for Offshore Ornithology*. In addition to the vessel movements in the construction and decommissioning phases of the Project, the maintenance and repair vessel movements also have the potential to impact on ornithology receptors during the operational phase and so should be factored into the assessment.

- *Section 7.5.7: Potential Mitigation*. In relation to the proposed mitigation measures outlined for offshore ornithology, the Developer is advised to ensure that the proposed Vessel Management Plan (VMP) is agreed in writing with NRW. Several features of the Liverpool Bay SPA are known to be sensitive to anthropogenic disturbance (as noted above) and so further consideration of any potential additional vessel movements from the operational and maintenance phases is advised.

- Should work be undertaken during the non-breeding season, this would be likely to coincide with the presence of red-throated diver and common scoter in the Liverpool Bay SPA. The number of boat movements associated with the works should therefore be included within the ES. The significance of any increase in vessel movements, in particular those that transit the Liverpool Bay SPA should be presented in relation to the disturbance to the red-throated diver and common scoter, covering any vessel transit routes taken. Interim advice of the treatment of displacement for red-throated diver is available at Joint SNCB Interim Displacement Advice Note | JNCC Resource Hub (https://hub.jncc.gov.uk/assets/9aecb87c-80c5-4cfb-9102-39f0228dcc9a).

H. Shipping and Navigation

Key Issues:

- The development area for the Project carries a significant amount of through traffic to major ports, with a number of important international shipping routes in close proximity. The Developer is required to take into consideration any changes in vessel routing, particularly in heavy weather, to ensure shipping can continue to make safe passage without large-scale deviations. Any reduction in navigable depth should be referenced to chart data.

- The Navigational Risk Assessment should establish how the phases of the Project are managed to a point where risks are reduced and considered to be 'as low as reasonably practicable' (ALARP).

- It is noted that the ES will consider the potential impacts of the construction, operation and maintenance and decommissioning phases of the Project and will follow the IMO Formal Safety Assessment methodology. The ES should provide details on the possible impacts of navigational issues for both commercial and recreational craft specifically:

    i. Collision Risk;

    ii. Navigational Safety;

    iii. Risk Management and Emergency response including potential impacts to search and rescue (SAR) and emergency response in the area to ensure there are no impacts on SAR operations;

    iv. Marking and lighting of site and information to mariners;

    v. Effect on small craft navigational and communication equipment;

    vi. The risk to drifting recreational craft in adverse weather or tidal conditions; and

    vii. The likely squeeze of small craft into the routes of larger commercial vessels.

- A safe realistic under keel clearance (UKC) assessment should be undertaken for the maximum drafts of vessels, both observed and anticipated. A link to The Maritime and Coastguard Agency (MCA) Under Keel Clearance Policy is provided in Annex 2.

- The Developer should ensure that any cables which need to be buried meet the appropriate burial depth and that evidence of this is provided by completing a Burial Protection Index study.

- Subject to the traffic volumes, the Developer should note that an anchor penetration study may also be necessary. If cable protection measures are required (rock bags or mattresses), the MCA is willing to accept a 5% reduction in surrounding reference depths referenced to Chart Datum. This will be particularly relevant where depths are decreasing towards shore and potential impacts on navigable water increase. Where this is not achievable, the Developer must discuss this further with the MCA and Trinity House.

- It is advised that no effects are scoped out of the ES assessment with regards to shipping and navigation pending the outcome of the Navigational Risk Assessment (NRA) and further stakeholder consultation.

I. Appendix B: Benthic Subtidal Sampling and Analysis Plan

Key Issues:

- *Section 2.1: Review of Existing Datasets*. Data from Gwynt y Mor Year 1 and 2 Post Construction Monitoring Surveys are now available and should be used to inform any site-specific surveys

- *Section 4.2.1: Proposed Development*. It is recommended that, for characterisation surveys, it is acceptable to collect the Particle Size Analysis (PSA) sample from the biotic sample provided that

there is sufficient volume of sediment in the grab so as not to compromise the biotic sample by doing so. If additional samples also need to be collected for chemical analysis (as appears to be the case from *Section 4.3: Sediment Contaminant Sampling*), then it is more likely that an additional grab for PSA and chemical samples will be required so as not to deplete the biotic sample.

- *Figure 4-1: Proposed Sampling Locations for the Eni Development Area, Partial Decommissioning and OSI Infrastructure*. Samples along the cable route should be taken at intervals of between 1-2 km, particularly in nearshore areas where habitats tend to be more heterogenous. The spacing of the proposed sampling appears to be circa 4–5 km.

- As noted in *Section 5.4.1: Habitats/Species of Conservation Importance,* stony reef can be categorised according to Irving (2009) with additional clarification provided by Golding *et al*. (2020). The criteria state that low resemblance stony reef can be included as an Annex 1 feature where there is 'strong justification'. It is currently advised that any justification for inclusion of low resemblance stony reef should be based on the following:

  i. The associated biological community is composed of a diverse mix of epibiota, including erect and/or branching forms; and/or

  ii. The substrate is relatively stable and allows longer lived or slow growing epibiota to persist.

J. References provided in the Scoping Opinion

Cresci, A., Durfif, C.M.F, Larsen, T., Bjelland, R., Larsen, T., Skiftesvik, A.B., Browman, H.I. 2022. Magnetic fields produced by subsea high voltage DC cables reduce swimming activity of haddock larvae (*Melanogrammus aeglefinus*). PNAS Nexus, Volume 1.Online: Magnetic fields produced by subsea high-voltage direct current cables reduce swimming activity of haddock larvae (Melanogrammus aeglefinus) | PNAS Nexus | Oxford Academic (oup.com)

Golding, N., Albrecht, J., McBreen, F. 2020 Refining the Criteria for Defining areas with a 'Low Resemblance' to Annex I Stony Reef. Joint Nature Conservation Committee, JNCC Report No. 656.

Harsanyi, P.; Scott, K.; Easton, B.A.A.; de la Cruz Ortiz, G.;Chapman, E.C.N.; Piper, A.J.R.; Rochas, C.M.V.; Lyndon, A.R. 2022. The Effects of Anthropogenic Electromagnetic Fields (EMF) on the Early Development of Two Commercially Important Crustaceans, European Lobster, *Homarus gammarus* (L.) and Edible Crab, *Cancer pagurus* (L.). J. Mar. Sci. Eng. **2022**, 10, 564. Online: https://doi.org/10.3390/jmse10050564

IAMMWG. 2015. Management Units for cetaceans in UK waters (January 2015). JNCC Report No. 547, JNCC Peterborough, ISSN 0963-8091.

Irving, R. (2009) Identification of the Main Characteristics of Stony Reef Habitats under the Habitats Directive. Summary of an Inter-Agency Workshop 26-27 March 2008. Joint Nature Conservation Committee, JNCC Report No. 432, 28pp.

NRW. 2022. NRW's position on the use of Marine Mammal Management Units for screening and assessment in Habitats Regulations Assessments for Special Areas of Conservation with marine mammal features. Report PS006. Online: PS0006 MMMUs in HRA Position statement May22 (cyfoethnaturiol.cymru)

SCOS. 202. Scientific Advice on Matters Related to the Management of Seal Populations: 2021. Special Committee on Seals, SMRU, University of St Andrew.

Tougaard, J., 2021. Thresholds for behavioural responses to noise in marine mammals. Technical Report from DCE–Danish Centre for Environment and Energy, (225).

Annex 2 Additional Sources of Information

This Annex outlines additional sources information sources which may be useful when completing the ES

1. Advice on ES Scoping

Environmental Data

Natural England's maps and data on the natural environment is available at: http://www.naturalengland.org.uk/publications/data/

Natural England's Site of Special Scientific Interest (SSSI) Impact Risk Zones are a GIS dataset which can be accessed via the Natural England Open Data Geoportal https://naturalengland-defra.opendata.arcgis.com/datasets/sssi-impact-risk-zones-england/explore

Important Nature Conservation Sites

Further information on the special interest features, their conservation objectives, and any relevant conservation advice packages for designated conservation sites is available on at Natural England and Joint Nature Conservation Committee (JNCC) websites at the links provided below.
https://designatedsites.naturalengland.org.uk/;
https://jncc.gov.uk/our-work/about-marine-protected-areas/

Natural England's Impact Risk Zones. The dataset and user guidance can be accessed from the Natural England Open Data Geoportal:
https://naturalengland-defra.opendata.arcgis.com/datasets/sssi-impact-risk-zones-england/explore?location=52.794995%2C-2.504131%2C6.97

Sites of Special Scientific Interest (SSSI). Further information on Marine Conservation Zones (MCZ) and Sites of Special Scientific Interest (SSSI the SSSI are available from:
www.magic.gov.

Factsheets that establish the purpose of designation and conservation objectives for each of the MCZs are available at:
https://www.gov.uk/government/collections/marine-conservation-zone-designations-in-england.
http://publications.naturalengland.org.uk/category/1723382.
https://designatedsites.naturalengland.org.uk/.

2. Designated Landscapes/Seascape Character

Landscape and visual impacts

Landscape and Seascape Character (LCA/SCA) assessment Guidance:
https://www.gov.uk/guidance/landscape-and seascape-character-assessments
National Character Areas: data for local decision making:
https://www.gov.uk/government/publications/national-character-area-profiles-data-for-local-decision-making

Local level LCA/SCA:
https://www.gov.uk/government/publications/seascape-assessments-for-north-east-north-west-south-east-south-west-marine-plan-areas-mmo1134
https://www.data.gov.uk/dataset/3fed3362-2279-4645-8aaf-c6b431c94485/mmo1037-marine-character-areas

3. Air Quality and Climate Change Adaptation

Air Pollution Information System (https://www.apis.ac.uk/)

Institute of Air Quality Management (IAQM) guidance on assessing air quality impacts on designated nature conservation sites: http://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2020.pdf

4. Benthic Subtidal and Intertidal Ecology

MarLIN - The Marine Life Information Network - Marine Evidence based Sensitivity Assessment (MarESA): https://www.marlin.ac.uk/sensitivity/sensitivity_rationale

Marine Pressures-Activities Database (PAD) v1.5 | JNCC Resource Hub: https://hub.jncc.gov.uk/assets/97447f16-9f38-49ff-a3af-56d437fd1951#:~:text=The%20PAD%20can%20be%20accessed,to%20data.gov.uk.

5. Marine Ornithology

Section 7.5.4. JNCC advice note on Seabird Survey Methods for Offshore Installations – information and resources signposting document: https://www.gov.uk/guidance/oil-and-gas-offshore-environmental-legislation#conservation-of-offshore-marine-habitats-and-species-regulations-2017

6. Shipping and Navigation

The Maritime and Coastguard Agency (MCA) Under Keel Clearance Policy paper is available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/373456/Under_Keel_Clearance_paper_May_14_-_FINAL.pdf