

The Planning Act 2008

MORECAMBE OFFSHORE WINDFARM GENERATION ASSETS

Examining Authority's Report
of Findings and Conclusions
and

Recommendation to the Secretary of State for
Energy Security and Net Zero

Examining Authority

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23 July 2025

MAIN REPORT

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OVERVIEW

File Ref: EN010121

The application, dated 30 May 2024, was made under section 37 of the Planning Act 2008 and was received by The Planning Inspectorate on 31 May 2024.

The applicant is Morecambe Offshore Windfarm Limited.

The application was accepted for examination on 27 June 2024.

The examination of the application began on 24 October 2024 and was completed on 23 April 2025.

The development proposed comprises the construction, operation and maintenance of an offshore wind power generating station with an electrical output capacity of over 100 megawatts (MW). The anticipated nominal generating capacity of the proposed development is 480MW which is expected to generate approximately 2,500 gigawatt hours (GWh) per year. The proposal site is located entirely in offshore English Waters in the eastern Irish Sea and lies approximately 30 kilometres (km) from the nearest point of the site to the Lancashire coast, 58km from the coastline of the Isle of Man, 37km from the UK and the Isle of Man's jurisdiction boundary and 50km from the north coast of Wales.

The Order Limits for the proposed development cover an area of approximately 87 square kilometres and relate only to the generation assets of the Morecambe Offshore Wind Farm. The transmission infrastructure associated with the proposed development and the Morgan Offshore Wind Project (another proposed wind farm to be located in the Irish Sea) are the subject of separate applications seeking development consent.

The principal components of the proposed development comprise the following:

- up to 35 offshore wind turbine generators
- one or two offshore substation platforms
- a network of subsea inter-array cables (between the wind turbine generators and between the wind turbine generators and the offshore substation platforms) including cables crossings and cable protection
- a network of subsea platform link cables including cable crossings and cable protection
- other offshore infrastructure including scour protection, cable protection measures, moorings and buoys

Summary of Recommendation:

The Examining Authority recommends that subject to consideration of the matters referred to in paragraph 23.3.3 of the report the Secretary of State should make the Order in the form attached.

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1. INTRODUCTION

1.1. BACKGROUND TO THE EXAMINATION

- 1.1.1. An application for the Morecambe Offshore Windfarm Generation Assets (the proposed development), Planning Inspectorate (the Inspectorate) reference EN010121, was submitted by Morecambe Offshore Windfarm Limited (the applicant) to the Inspectorate on 31 May 2024 under section (s) 37 of the Planning Act 2008 (PA2008) and accepted for examination under s55 of the PA2008 on 27 June 2024 [\[PD-002\]](#).
- 1.1.2. This report sets out our findings, conclusions and recommendations as the Examining Authority (ExA) to the Secretary of State for Energy Security and Net Zero (SoS).

1.2. APPOINTMENT OF THE EXAMINING AUTHORITY

- 1.2.1. On 23 July 2024, Robert Jackson, Richard Hunt and Marc Willis were appointed as the ExA for the application under s61 and s65 of the PA2008 [\[PD-004\]](#). Robert Jackson was appointed as the Lead Member of the Panel. On 27 August 2024, Guy Rigby was appointed to the ExA as a replacement member of the panel following the resignation of Richard Hunt [\[PD-005\]](#).

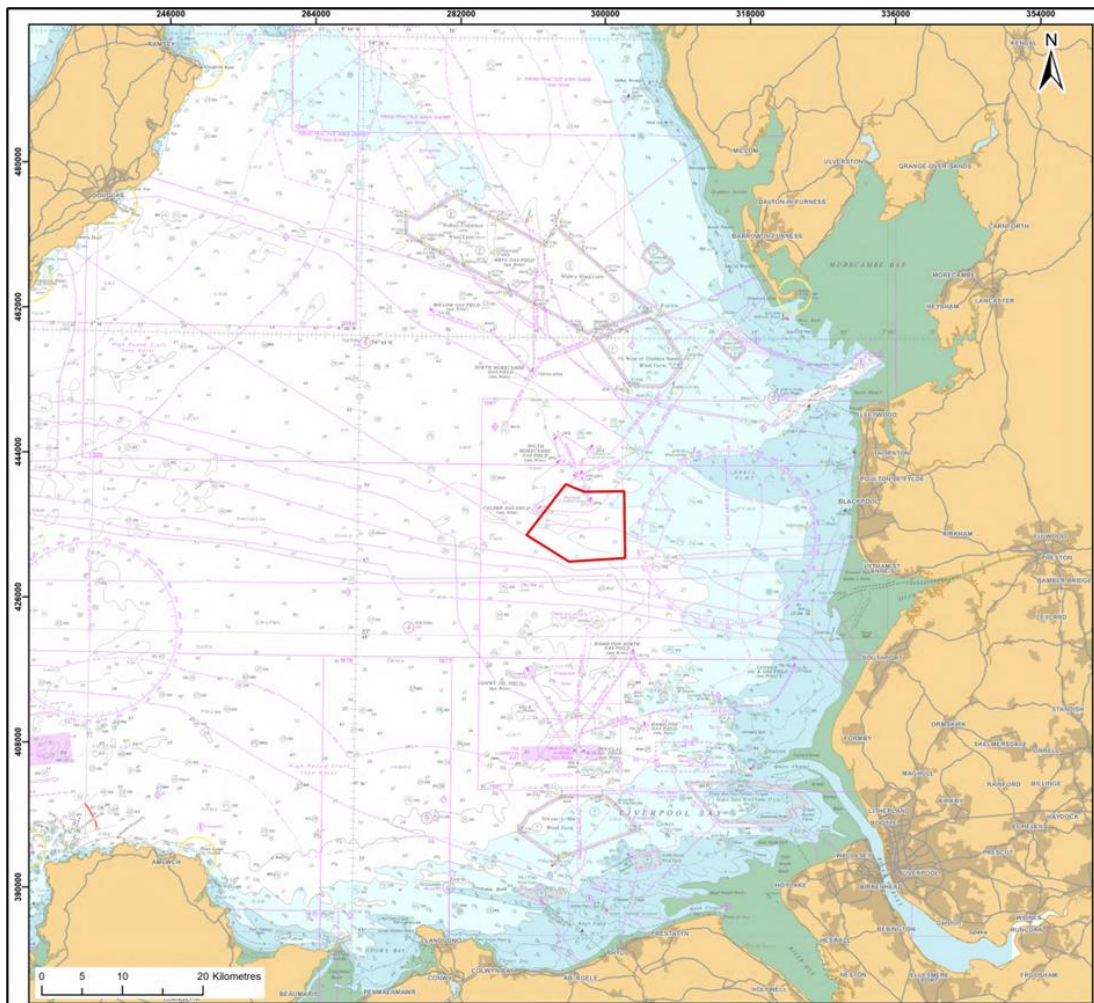
1.3. THE APPLICATION

- 1.3.1. The legislative tests for whether the proposed development is a nationally significant infrastructure project (NSIP) were considered by the Secretary of State for Levelling Up, Housing and Communities (SoSLUHC) in the decision to accept the application for examination in accordance with s55 of the PA2008 [\[PD-002\]](#).
- 1.3.2. The proposed development is an offshore generating station with a capacity of more than 100 megawatts (MW). The proposed development falls within s14(1)(a) of the PA2008 and meets the definition of an NSIP set out in s15(3) of the PA2008. As such, the proposed development requires development consent in accordance with s31 of PA2008.
- 1.3.3. The [Examination Library](#) (EL) provides a record of all application documents and submissions to the examination, each of which is given a unique reference number e.g. [\[APP-001\]](#). The reference numbers are used throughout this report and hyperlinks are included to allow the reader to access them directly.
- 1.3.4. This report does not contain extensive summaries of the documents and representations received. Readers are referred to relevant material using linked EL references. Full regard has been had to all such material and to all important and relevant matters arising from it in all our conclusions and the recommendation we have made in this report.

LOCATION OF THE PROPOSED DEVELOPMENT

- 1.3.5. The proposed development is located entirely in offshore English Waters in the eastern Irish Sea. The site lies approximately 30 kilometres (km) from the nearest point of the site to the Lancashire coast, 58km from the coastline of the Isle of Man, 37km from the UK and the Isle of Man's jurisdictional boundary and 50km from the north coast of Wales.
- 1.3.6. The location of the proposed development is shown in the Offshore Location Plan [\[APP-005\]](#) and also on figure 5.1 which supports chapter 5 of the environmental statement (ES) [\[APP-090\]](#) (extract shown in Figure 1 below).

Figure 1: Morecambe Offshore Wind Farm Site Location Plan [\[APP-090\]](#)



- 1.3.7. The application site covers an area of approximately 87 square kilometres (km²) and is shown on the Offshore Order Limits and Grid Coordinates Plan [\[APP-008\]](#).
- 1.3.8. The transmission infrastructure associated with the proposed development and the Morgan Offshore Wind Project (another wind farm which is proposed to be located in the Irish Sea to the west of the application site) is the subject of a separate application seeking development consent. This is known as the Morgan and Morecambe Offshore Wind Farms Transmission Assets

(M&MTA) project which was accepted for examination under s55 of PA2008 on 18 November 2024 [\[PD-001\]](#) (case reference EN020028). The examination of that application commenced on 29 April 2025 and is due to be completed by 29 October 2025 and the report submitted within 3 months thereof.

- 1.3.9. Chapter 5 of the ES [\[REP1-022\]](#) and the Planning, Development Consent and Need Statement [\[REP3-004\]](#) provide a detailed description of the existing site and the main characteristics of the surrounding area.

DESCRIPTION OF THE PROPOSED DEVELOPMENT

- 1.3.10. The proposed development comprises the construction, operation and maintenance of an offshore wind power generating station with an electrical output capacity of over 100MW. The total generation capacity of the proposed development has not been defined however it is anticipated that it would have a nominal generation capacity of approximately 480MW and would, briefly, comprise of:

- up to 35 offshore wind turbine generators (WTG)
- one or two offshore substation platforms (OSP)
- a network of subsea inter-array cables (between the WTGs and between the WTGs and the OSPs) including cable crossings and cable protection
- a network of subsea platform link cables including cable crossings and cable protection
- other offshore infrastructure including scour protection, cable protection measures, moorings and buoys

- 1.3.11. Given the rapid and evolving development of offshore wind technology, some of the specific design details of the proposed development have not yet been confirmed. These details include:

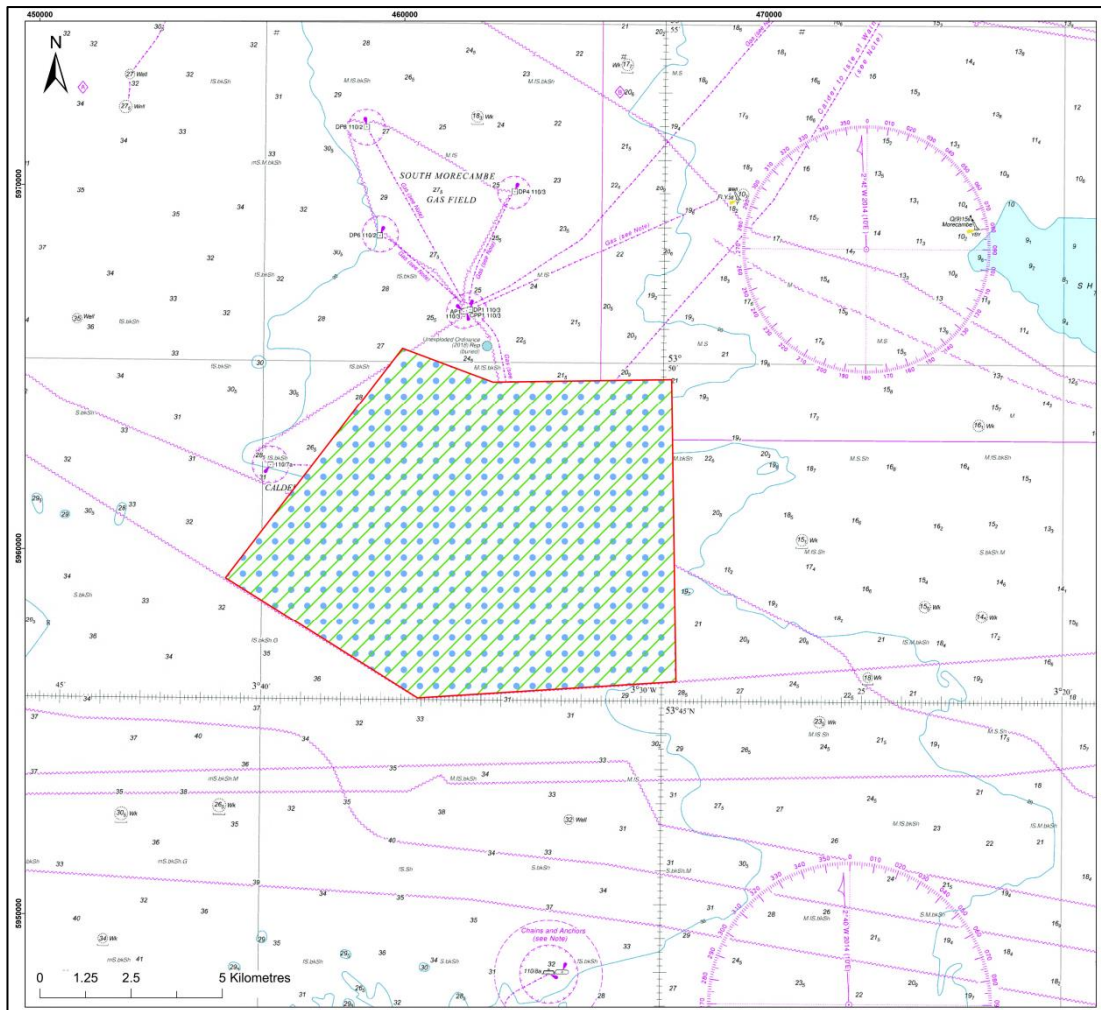
- the precise number, location and configuration of WTGs and OSP(s) and any associated development
- the type of foundation to install the WTGs and OSP(s) and any associated development
- the exact height of the tip of the WTG rotors, blade lengths and the diameter of the rotors

- 1.3.12. The applicant proposes that these specific design details would be finalised and decided post consent so as to retain some flexibility in how the development may be built out. While the need for flexibility is identified in a number of National Policy Statements (NPS), the Overarching National Policy Statement for Energy (NPS EN-1) (paragraph 4.3.12) and National Policy Statement for Renewable Energy (NPS EN-3) (paragraph 2.6.2) stress the need to ensure that the significant effects of a proposed development have been properly assessed. The applicant therefore adopted a Project Design Envelope (PDE), parameter-based approach for the purposes of assessing the potential impacts of the development as part of the ES. The PDE approach is well established in the wind farm industry and consistent with [PINS Advice Note Nine: Rochdale Envelope](#).

- 1.3.13. The PDE provides for a range of maximum and minimum project design parameters that, based on a realistic worst-case scenario, enables the likely environmental effects for each potential impact to be assessed as part of the ES. It is acknowledged that different design parameters or scenarios could give rise to different potential impacts, magnitude of impact and/ or different effects on receptors and therefore the ES describes how the realistic worst-case scenario for each topic has been determined. These are provided in the Realistic Worst-Case Scenario section of each ES chapter and the Report to Inform Appropriate Assessment (RIAA) [\[REP5a-009\]](#), with notes and rationale provided to explain the basis of the scenarios identified. Table 2.2 of the Planning, Development Consent and Need Statement [\[REP3-004\]](#) and requirement (R) 2 of the draft Development Consent Order (dDCO) [\[REP6-002\]](#) and condition (C) 1 of the draft Deemed Marine Licence (dDML) in part 2 of schedule 6 of the dDCO set out the overall maximum and minimum design parameters within which the proposed development must be constructed.
- 1.3.14. The application site covers an area of approximately 87km² and is shown on the Offshore Order Limits and Grid Coordinates Plan [\[APP-008\]](#). Within the application site the proposed development comprises two packages of works. Work No.1 comprises works for which the applicant considers development consent is required as an NSIP and Work No.2 includes works that the applicant considers are associated development and further associated development for the purposes of s115 of the PA2008. These are summarised as follows:
- Work No. 1 – works include up to 35 WTGs each fixed to the seabed by a foundation and a network of subsea inter-array cables between the wind turbine generators and between the wind turbine generators and the offshore substation platforms.
 - Work No. 2 – works include one or two OSPs each fixed to the seabed by a foundation and a network of subsea platform link cables including cable crossings and cable protection.
 - Additional works to Work Nos. 1 and 2 include scour protection, cable protection measures, the removal of material from the seabed, the disposal of material on the seabed within the application site, seabed preparation for foundation works, cable installation preparation, sandwave clearance, seabed levelling, boulder clearance, the removal of out of service cables and static fishing equipment, and the disposal of drill arisings.
- 1.3.15. Ancillary Works (that is works/ provisions not consisting of development) are also proposed. These comprise moorings or other means of accommodating vessels in the construction and/ or maintenance of the authorised development as well as marking buoys, beacons, fenders and other navigational warning or ship impact protection works.
- 1.3.16. Figure 2 (below) is taken from the Offshore Works Plan [\[APP-007\]](#) and shows the spatial extent of each work package described above. Further details of each work package, associated development and ancillary works

(including relevant definitions) can be found under schedule 1 of our recommended draft Development Consent Order (rdDCO) in Appendix D.

Figure 2: Morecambe Offshore Works Plan [APP-007].



RELEVANT PLANNING HISTORY

- 1.3.17. The Irish Sea is host to numerous infrastructure and activities including offshore wind projects, oil and gas operations, shipping routes, aggregate and disposal sites and existing subsea cable infrastructure.

Other offshore wind projects

- 1.3.18. A number of offshore wind projects are located or proposed within the Irish Sea and are located north and south of the proposed development. Some of these projects have been fully constructed and are operational. Others have consent but have yet to be built whilst some, which lie within English and Welsh waters, are currently seeking development consent pursuant to the PA2008 or, where the proposal lies within the Isle of Man territorial waters, are seeking a Marine Infrastructure Consent pursuant to the Marine Infrastructure Management Act 2016.

1.3.19. Existing operational offshore wind farms (OWFs) in the vicinity are set out in Table 1.

Table 1: Existing OWFs in vicinity of application site

Wind Farm	Distance from site (km)	Orientation from site	Number of turbines	Total Capacity (MW)	Operational date	Hub height (m)	Maximum Blade tip height (m)
West of Duddon Sands	12.9	North	108	389	2014	90.0	150.0
Walney 1 & 2	20.0	North	102	367	2012	90.0	150.0
Walney 3 & 4	30.7	North-northwest	87	659	2018	111.0	188.0
Barrow	21.0	North-northeast	30	90	2006	75.0	120.0
Ormonde	27.0	North	30	150		90.0	153.0
Burbo Bank	33.4	Southeast	25	90	2007	83.5	187.0
Burbo Bank Extension	29.1	Southeast	32	258	2017	105	187.0
Gwynt y Môr	28.9	South	160	576	2017	79.5	133.0
North Hoyle	36.3	South	20	40	2003	67.0	107.0
Rhyl Flats	40.0	South	25	90	2009	80.0	133.5

1.3.20. Six other energy infrastructure projects are either consented or planned within the Irish Sea and these are located to the north-west and south of the proposed development. These projects include:

- Awel y Môr OWF (AyM)
- Morgan and Morecambe Offshore Wind Farms Transmission Assets (M&MTA)
- Morgan Offshore Wind Project: Generation Assets (MOWP)
- Mona Offshore Wind Project (MonOWP)
- Mooir Vannin OWF (MVOWF)
- East Irish Sea Transmission Project (EISTP)

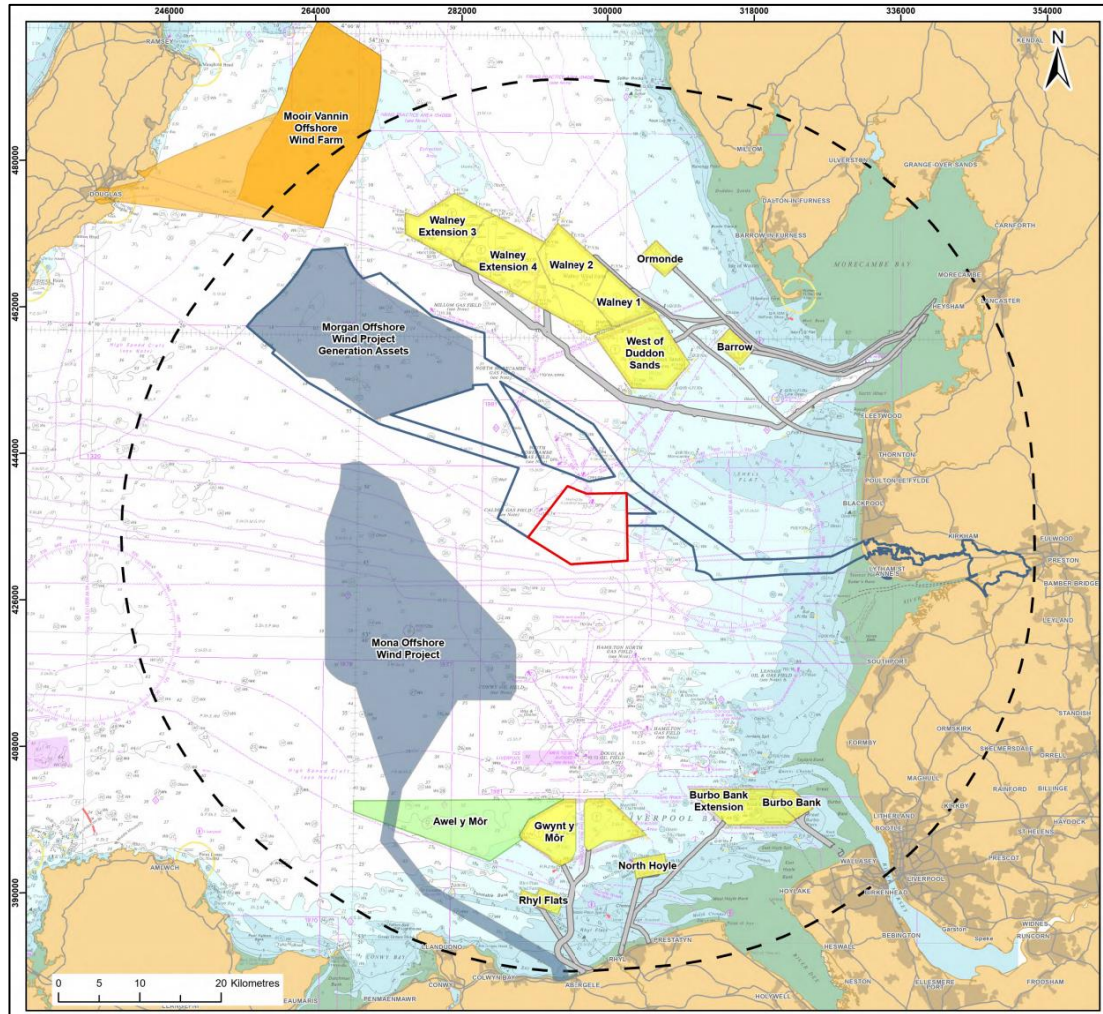
1.3.21. AyM OWF would be located 10.5km off the Welsh Coast and to the west of the existing Gwynt y Môr OWF. The SoS approved the DCO and Natural Resources Wales (NRW) approved the Marine Licence in 2023. The electrical output of the project is not defined precisely, however, the DCO allows for up to 50 WTGs to be constructed. Documentation supporting the application states that the turbines would have a capacity of a minimum of 11.5MW each giving a total with 50 WTGs of over 550MW.

1.3.22. The M&MTA project is described in paragraph 1.3.8 of this report.

- 1.3.23. The MOWP would be located 37km from the coast of northwest England and 22km from the Isle of Man and extends up to the UK's jurisdictional boundary with the Isle of Man. The project would be commercially and financially distinct from the proposed development and proposes an indicative capacity of 1.5 gigawatts (GW) and would comprise of up to 96 WTGs. A DCO application for the project was received by the Inspectorate on 24 April 2024 and accepted for examination on 17 May 2024 (reference EN010136). The examination closed on 10 March 2024 and the recommendation report was sent to the SoS on 29 May 2025.
- 1.3.24. The MonOWP would be another OWF situated to the south-west of the proposed development and lies entirely in Welsh waters, 28km from the North Wales coastline, 46km from the northwest coast of England and 46km from the Isle of Man. The project proposes an indicative capacity of 1.5 GW and would comprise of up to 96 WTGs. A DCO application for the MonOWP was submitted to the Inspectorate on 22 February 2024 and accepted for Examination on 21 March 2024 (reference EN010137). The SoS granted development consent on 4 July 2025.
- 1.3.25. The MVOWF would be located to the northwest of the proposed development, beyond the proposed MOWP and would be between 6 nautical miles (nm) and 12nm off the eastern coast of the Isle of Man. MVOWF would be the first OWF planned within the Isle of Man's territorial waters and is proposed to have an indicative capacity of 1.4GW. It is expected to comprise up to 100 WTGs and both onshore and offshore transmission infrastructure to enable electricity generated to be exported to the Isle of Man and England. An application seeking consent to build the MVOWF, that is the offshore WTGs and transmission assets to the Isle of Man, was submitted for determination by authorities on the Isle of Man in March 2025. It was, however, withdrawn in June 2025 in light of forthcoming amendments to the Isle of Man consenting regime, with a view to being resubmitted later in the year. The transmission infrastructure required to connect the MVOWF to England forms part of the EISTP which would be the subject of a separate DCO application (see below).
- 1.3.26. The EISTP would comprise transmission infrastructure located in England and English waters connecting the MVOWF to the Penwortham substation in England. The development proposes to include an onshore substation and electricity balancing infrastructure together with associated development including offshore booster station(s) and offshore and onshore cabling. On 17 October 2024 the SoS determined that the project was to be an energy project under the PA2008 through the operation of s35 of the PA2008.
- 1.3.27. Table 5.1 in the applicant's 'Response to Actions arising from Preliminary Meeting and Issue Specific Hearing 1' [[REP1-086](#)] lists the offshore wind farm projects within 50km of the proposed development and includes the applicant's understanding as to the heights, distances, orientation and expected decommissioning dates of existing and consented OWFs.

1.3.28. Figure 3 shows the location of other proposed and operational offshore wind farms relative to the proposed development as presented in figure 17.2 of the ES [APP-105].

Figure 3: Location of other existing and proposed offshore wind farms [APP-105]

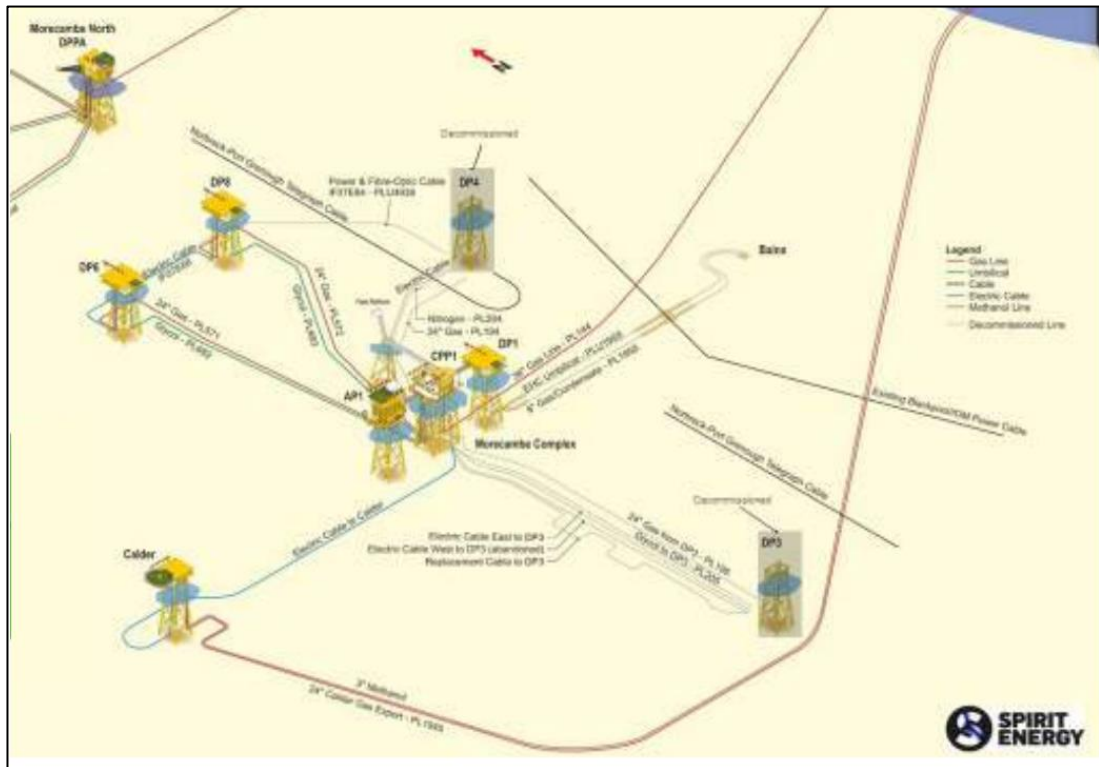


Other infrastructure and activities

1.3.29. The wind farm site overlaps the existing South Morecambe gas field and is in proximity to its existing infrastructure of platforms, pipelines, cables and wells. The nearest active platforms to the site are the Calder CA1 (Calder) platform and those that form part of the South Morecambe gas field Central Processing Complex (CPC). Calder is a small normally unmanned installation (NUI) platform with a single topside located to the mid-west of the wind farm site boundary. The CPC comprises three bridge linked platforms including an accommodation platform (AP-1), central production platform (CPP-1) and drilling platform (DP-1). Throughout this report we have used the term CPC when referring to the complex as a whole (that is the three platforms AP-1, CPP-1 and DP-1) however within its submissions the applicant also referred to the CPC as CPP1 (which is not hyphenated). Therefore, for the avoidance of doubt, any references to CPP1 should be read as also referring to the CPC and not the individual central production

platform CPP-1 (which is hyphenated). A former drilling platform DP3, which lay within the wind farm site, has now been decommissioned, with the platform topsides and jacket removed.

Figure 4: Configuration of offshore oil and gas platforms (extract from [REP1-116, page 68])



1.3.30. Other infrastructure includes the transatlantic telecommunication cable, Hibernia Atlantic which is owned by GTT Communications Inc. and traverses the wind farm site in a west-east direction. The Lanis 1 cable, owned by Vodafone, runs along the southern edge of the wind farm site, and marks the boundary of the site. There are also a number of active disposal and aggregate production sites within 50km of the proposed development however none of these are within the wind farm site. The nearest active disposal site lies 16.8km to the south of the site and the nearest aggregate site lies 9.5km to the south.

1.3.31. Figures 17.3 to 17.5 [APP-105] show the location of these various activities/ infrastructure relative to the proposed development.

1.4. THE EXAMINATION

PERSONS INVOLVED IN THE EXAMINATION

1.4.1. The persons involved in the examination were:

- Interested parties (IPs) who were entitled to participate because they had made a relevant representation (RR) or were a statutory party who requested to become an IP.

- Other persons (OPs), who were invited to participate in the examination because they were either affected by it in some other relevant way or because they had particular expertise or evidence that we considered to be necessary to inform the examination.
- We also permitted Bodorgan Marine Limited (BML) to make representations to the examination even though it had not made a RR or been invited by us to become OPs prior to the preliminary meeting (PM). BML's first formal submission to the examination was at deadline (D) 3 [\[REP3-098\]](#), 22 January 2025.

SUMMARY OF EVENTS IN THE EXAMINATION

- 1.4.2. The PM took place on 23 October 2024 [\[EV1-001\]](#) and the examination closed on 23 April 2025.
- 1.4.3. The examination timetable identified dates for hearings and set deadlines for receipt of written material. The original timetable, including all deadlines, can be found in the Rule 8 Letter [\[PD-010\]](#) dated 30 October 2024.
- 1.4.4. On 17 March 2025 we made a procedural decision to revise the examination timetable [\[PD-016\]](#) which:
- cancelled the hearings originally scheduled for the week commencing 31 March 2025 and consequently the need to submit post hearing summaries
 - gave notice of our decision to publish additional written questions (ExQ3) on 25 March 2025
 - added a new deadline (D5a) for parties to respond to the additional written questions (ExQ3) by 8 April 2025
 - invited parties to respond to any comments received at D5a by the existing D6 on 15 April 2025

PROCEDURAL DECISIONS

- 1.4.5. The procedural decisions (PD) we have taken are recorded in the EL referenced [\[PD-006\]](#) to [\[PD-022\]](#). They detail the decisions we took relating to the procedure of the examination and were (generally) complied with by the applicant and IPs.

WRITTEN QUESTIONS

- 1.4.6. We asked three rounds of written questions:
- ExQ1 issued on 18 December 2024 [\[PD-011\]](#)
 - ExQ2 issued on 27 February 2025 [\[PD-015\]](#)
 - ExQ3 issued on 25 March 2025 [\[PD-018\]](#)
- 1.4.7. We also wrote a number of letters under Rule 17 of the Infrastructure Planning (Examination Procedure) Rules 2010 to participants requesting further information. These were:
- 10 February 2025 [\[PD-013\]](#) to Natural England (NE) and the Marine Management Organisation (MMO)

- 10 February 2025 [[PD-014](#)] to NatureScot
- 10 April 2025 [[PD-020](#)] to the applicant, NE, the MMO, Harbour Energy, Spirit Energy and The Crown Estate (TCE)
- 17 April 2025 [[PD-021](#)] to the applicant

SITE INSPECTIONS

1.4.8. We carried out three unaccompanied site inspections (USI) and we have had regard to the information and impressions obtained during our site inspections in all relevant sections of this report. The USIs we undertook were as follows:

- USI1 undertaken on 9 September 2024: Views of the proposed development obtained from various onshore locations between Great Orme's Head in north Wales and Liverpool [[EV2-001](#)].
- USI2 undertaken on 10 September 2024: Views of the proposed development obtained from various onshore locations between Liverpool and Ulverston, including a visit to Penwortham [[EV2-002](#)].
- USI3 undertaken on 11 September 2024: Views of the proposed development obtained from various onshore locations between Ulverston and north-west Cumbrian coast including Barrow-in-Furness and Walney Island [[EV2-003](#)].

1.4.9. An accompanied site inspection (ASI) was not considered necessary and so we did not carry one out.

HEARINGS

1.4.10. A number of hearings were held to ensure the thorough examination of the relevant issues raised by the application. These were:

- ISH1 [[EV3-001](#) to [EV3-008](#)] on 24 October 2024 which dealt with matters relating to the Scope of Development and Interrelationship with other Infrastructure Projects, the Development Consent Order (DCO) and Explanatory Memorandum (EM).
- ISH2 [[EV4-001](#) to [EV4-009](#)] on 4 February 2025 which focused on Environmental Matters.
- ISH3 [[EV5-001](#) to [EV5-007](#)] on 5 February 2025 which focused on Other Sea Users and Aviation matters.
- ISH4 [[EV6-001](#) to [EV6-005](#)] on 6 February 2025 which further considered the dDCO.

1.4.11. No party requested an open floor hearing, so none was held.

1.4.12. As the application did not include a request for consent to authorise the compulsory acquisition of land or of an interest in or right over land no compulsory acquisition hearings were held.

WRITTEN PROCESSES

Representations and Other Examination Documents

1.4.13. Examination under PA2008 is primarily a written process, in which an ExA has regard to written material forming the application and arising from the examination. All of this material is recorded in the examination library and published online. For this reason, this report does not contain extensive summaries of all documents and representations, although full regard has been had to them in our conclusions. We have considered all important and relevant matters arising from them.

1.4.14. Key written sources are set out further below.

Relevant Representations

1.4.15. Ninety-three RRs were received by the Planning Inspectorate [[RR-001](#) to [RR-093](#)] and these can be found on the [Project page](#). Some of the RRs received raised issues relating to the onshore cables, landfall and substation associated with the grid connection proposals that form part of the separate [Morgan and Morecambe Offshore Wind Farms Transmission Assets project \(M&MTA\)](#). These onshore works fall outside the scope of this application and so we advised in the Rule 6 Letter [[PD-007](#)] how we intended to deal with any overlapping matters, including cumulative effects, associated with the proposed development and the M&MTA project and other projects. All makers of RRs were provided with an opportunity to become involved in the examination as IPs.

1.4.16. On 23 September 2024 we wrote to Agentschap Landbouw and Zeevisserij (also known as The Flemish Agency for Agriculture and Fisheries) [[PD-008](#)], NatureScot and the Department of Agriculture, Environment and Rural Affairs (Northern Ireland) [[PD-009](#)] confirming our decision to provide them with OP status in the examination and inviting them to the PM.

1.4.17. Following the transboundary consultation with the Republic of Ireland, three representations were received from the Department of Housing, Local Government and Heritage Ireland, Meath County Council and BirdWatch Ireland. The initial representations can be found at [[OD-008](#)]. All three parties were notified of the examination timetable and given the opportunity to make representations [[OD-009](#) to [OD-011](#)].

1.4.18. We also wrote to the Civil Aviation Authority, Isle of Man Airport and Joint Nature Conservation Committee to notify them of the examination timetable and to ask them to respond to future written questions that we had during the examination [[OD-012](#) to [OD-014](#)].

1.4.19. The Environment Agency withdrew its RR as the proposed development lies beyond its 12nm remit [[AS-010](#)].

1.4.20. Finally, a number of existing offshore wind farm operators registered as IPs and participated in the examination process through joint representation and written submissions. For clarity and consistency throughout this report, we

refer to this group collectively as the 'Ørsted IPs'. The individual entities comprising the Ørsted IPs with their individual relevant representation references are:

- Barrow Offshore Wind Limited [[RR-008](#)]
- Burbo Extension Ltd [[RR-014](#)]
- Morecambe Wind Limited (West of Duddon Sands Wind farm) [[RR-056](#)]
- Walney (UK) Offshore Windfarms Limited [[RR-088](#)]
- Walney Extension Limited [[RR-089](#)]
- Ørsted Burbo (UK) Limited [[RR-093](#)]

- 1.4.21. All relevant issues raised in RRs have been considered in subsequent chapters of this report.

Written Representations and Other Examination Documents

- 1.4.22. The applicant, IPs and OPs were provided with opportunities to make written representations (WR) at every deadline during the examination. Parties were also invited to summarise in writing their oral submissions at hearings at D1 and D4 and to comment on documents issued for consultation by us including a commentary on the dDCO by D5a and D6.
- 1.4.23. All WRs and other examination documents have been fully considered by us. The relevant issues that they raise are considered in subsequent chapters of this report.

Local Impact Reports

- 1.4.24. A local impact report (LIR) is a report made by a relevant local authority giving details of the likely impact of the proposed development on the authority's area (or any part of that area).
- 1.4.25. As the proposed development is located entirely offshore in the English Waters in the eastern Irish Sea, no local authorities fall within the definition of a host or neighbouring authority described in s43 of PA2008. Notwithstanding this, on a precautionary basis, 29 local authorities across England, Wales, Scotland and the Isle of Man were notified and invited to register as IPs and take part in the examination of the application but were not invited or required to submit an LIR under s60 of the PA2008.

Statements of Common Ground

- 1.4.26. By the end of the examination, the following bodies had concluded and signed statements of common ground (SoCG) with the applicant:
- BAE Systems Marine Limited [[REP6-027](#)]
 - BAE Systems (Operations) Ltd and Defence Infrastructure Organisation (DIO) [[REP6-024](#)]
 - Blackpool Airport Ltd [[REP6-025](#)]
 - Defence Infrastructure Organisation [[REP5a-039](#)]
 - Harbour Energy [[AS-018](#)]
 - Historic England [[REP5a-044](#)]

- Isle of Man Government (Territorial Sea Committee) [[REP5a-037](#)]
- Isle of Man Steam Packet Company [[REP6-023](#)]
- Lancashire County Council [[REP5a-045](#)]
- Marine Management Organisation [[REP6-022](#)]
- Maritime and Coastguard Agency [[REP5a-038](#)]
- NATS (En Route) Plc [[REP5a-035](#)]
- National Federation of Fisherman's Organisations and the Welsh Fisheries Association (NFFO/ WFA) [[REP5a-034](#)]
- Natural Resource Wales (NRW) [[REP6-036](#)]
- Ørsted IPs [[REP6-028](#)]
- Royal Society for the Protection of Birds (RSPB) [[REP5a-033](#)]
- Spirit Energy Production Limited (Spirit Energy) [[AS-019](#)]
- Trinity House [[REP5a-036](#)]
- UK Chamber of Shipping [[REP6-026](#)]

1.4.27. Only one SoCG, with Stena Line Limited, remained unsigned at the end of the examination [[AS-017](#)].

1.4.28. We have taken fully into account the signed SoCGs in all relevant sections of this report. The weight (if any) to be afforded to the unsigned SoCG is considered in the relevant sections of this report.

1.5. CHANGES TO THE APPLICATION

1.5.1. Changes to the key application documents, including the wording of the dDCO, were submitted and updated during the examination. The changes sought to address points raised by IPs and us and to update or provide additional information resulting from changes and discussions that had occurred during the examination.

1.5.2. The applicant's changes to the application documents, together with any additional information submitted, are detailed in the Guide to the Application submitted at D6 [[REP6-001](#)]. This provides a guide to all documents submitted as part of the application and was updated at each deadline when new or revised documents were submitted. It provides a full record of all documentation submitted into the examination.

CHANGE REQUESTS

1.5.3. No formal change requests were made by the applicant during the course of the examination.

1.6. UNDERTAKINGS, OBLIGATIONS AND AGREEMENTS

1.6.1. No undertakings, obligations or agreements were provided to us during the examination. We were advised that discussions were continuing between the applicant and various parties, some with the aim to replace the need for protective provisions under the DCO. However, we were not advised that any had been completed.

1.7. OTHER CONSENTS

- 1.7.1. In addition to the consents required under the PA2008, the applicant would require other consents to construct, operate and maintain the proposed development. These are set out by the applicant in the Other Consents and Licences Required document [\[AS-007\]](#)

1.8. STRUCTURE OF THIS REPORT

- 1.8.1. The structure of the remainder of this report is as follows:

- Chapter 2 identifies how the application is to be determined and summaries the key legislation and policy context that applies to the decision.
- Chapters 3 to 21 set out the findings and conclusions in relation to the individual planning issues that arose from the application and during the examination.
- Chapter 22 considers effects on the national sites network and Habitats Regulations Assessment (HRA).
- Chapter 23 sets out the balance of planning considerations arising from chapters 3 to 22 in the light of important and relevant factual, legal and policy considerations.
- Chapter 24 deals with land rights, human rights and the public sector equality duty.
- Chapter 25 considers the implications of the matters arising from the preceding chapters for the DCO.
- Chapter 26 summarises all relevant considerations and sets out our recommendation to the SoS.

- 1.8.2. This report is supported by the following appendices:

- Appendix A – List of Abbreviations
- Appendix B – Key Legislation and Policy Reference Tables.
- Appendix C – Habitats Regulations Assessment
- Appendix D – Proposed changes to Parts 2 and 3 of Schedule 4 of the DCO
- Appendix E – The Recommended DCO

2. HOW THE APPLICATION IS DETERMINED

2.1. INTRODUCTION

- 2.1.1. This chapter outlines the key legislation and policies relevant to the consideration of the application.
- 2.1.2. Chapter 3 of the environmental statement (ES) [\[APP-040\]](#) outlines the international, national, regional and local legal and policy contexts to which the applicant had regard. Individual chapters of the ES also provided specific policy background relating to relevant technical topics.
- 2.1.3. The applicant's Planning, Development Consent and Need Statement [\[REP3-004\]](#) and the Marine Plan Policy Review [\[APP-025\]](#) also set out key planning policies relating to the proposed development.
- 2.1.4. In Appendix C to the Rule 6 Letter [\[PD-007\]](#), we set out our initial assessment of principal issues (IAP) as required under section (s) 88(1) of the Planning Act 2008 (PA2008). In making our recommendation we have taken into account all written and oral submissions that have been received during the course of the examination.

2.2. LEGISLATION

PLANNING ACT 2008

- 2.2.1. The PA2008 provides a different basis for decision-making for nationally significant infrastructure project (NSIP) applications where a relevant National Policy Statement (NPS) has effect from that where no NPS has effect. This is an application in respect of which there is more than one NPS in effect and so must proceed under PA2008 s104 (decisions in cases where NPSs have effect). There are no substantial elements of the proposed development that fall outside the remit of relevant NPS policies and so PA2008 s105 (decisions in cases where no NPSs have effect) is not relevant.
- 2.2.2. Section 104(2) of the PA2008 sets out the matters to which the Secretary of State (SoS) must have regard when making its decision. These include:
- any relevant NPS
 - the appropriate marine policy documents (if any) determined in accordance with s59 of the Marine and Coastal Access Act 2009 (MCCA)
 - any duly submitted local impact report (LIR)
 - any matters prescribed in relation to the development
 - any other matters the SoS thinks are both important and relevant to the decision
- 2.2.3. Section 104(3) of the PA2008 requires the SoS to decide the application in accordance with any relevant NPS that has effect, subject to the exceptions in subsections (4) to (8). The exceptions are that the SoS is satisfied that:

- deciding the application in accordance with any relevant NPS would lead to the UK being in breach of any of its international obligations
- deciding the application in accordance with any relevant NPS would lead to the SoS being in breach of any duty imposed on her or him by or under any enactment
- deciding the application in accordance with any relevant NPS would be unlawful by virtue of any enactment
- the adverse impact of the proposed development would outweigh its benefits
- any condition prescribed for deciding an application otherwise than in accordance with a NPS is met

2.2.4. This report sets out our findings, conclusions and recommendations taking these matters into account and applying s104 of the PA2008.

MARINE AND COASTAL ACCESS ACT 2009

2.2.5. [The MCCA](#) sets the framework for the marine planning system in the UK. It provides for the preparation of a UK Marine Policy Statement and marine plans for UK marine areas. The MCAA also introduced a new section to the PA2008 (Section 149A), enabling a Development Consent Order (DCO) applicant to apply for a Deemed Marine Licence (DML) as part of the DCO process.

2.2.6. Having regard to s104(2)(aa) of the PA2008, the SoS must have regard to any appropriate marine policy documents in deciding an application for an order granting development consent. In this case we consider appropriate marine policy documents to be the UK Marine Policy Statement 2011 and North West Inshore and North West Offshore Marine Plan 2021 (NWMP).

OTHER RELEVANT LEGISLATION

2.2.7. A full list of relevant international and national legislation, policy and guidance, including but not limited to duties arising under the Equality Act 2010, Human Rights Act 1998 and the Climate Change Act 2008 (as amended), can be found in Appendix B of this report.

2.2.8. We have considered all applicable legislation as required and the findings and recommendations in this report are framed to identify and enable the SoS to discharge all applicable statutory considerations or duties.

2.3. NATIONAL POLICY STATEMENTS

2.3.1. NPSs set out government policy on different types of national infrastructure development. Having regard to the purposes of s104(2)(a) of the PA2008, we consider that the following NPSs are relevant to the application:

- Overarching NPS for Energy (NPS EN-1)
- NPS for Renewable Energy (NPS EN-3)
- NPS for Electricity Networks Infrastructure (NPS EN-5)

- 2.3.2. All of the above NPSs were designated on 17 January 2024. These NPSs form the primary policy context for this examination and Appendix B provides further detail on these policies. This report sets out our findings, conclusions and recommendations taking these matters into account and the extent to which the proposed development accords with these policies.

OVERARCHING NATIONAL POLICY STATEMENT FOR ENERGY (NPS EN-1)

- 2.3.3. NPS EN-1 sets out the government's policy for the delivery of major energy infrastructure. It sets out general principles and generic impacts to be considered in examining applications for energy NSIPs and provides the policy framework within which all other energy NPSs sit.
- 2.3.4. Section 4.2 of NPS EN-1 establishes the principle of a critical national priority (CNP) for the provision of nationally significant low carbon infrastructure. Low carbon infrastructure for the purposes of this policy includes, amongst other things, offshore renewable electricity generation such as offshore wind farms and all electricity grid infrastructure in scope of NPS EN-5 such as power lines and associated substations. NPS EN-1 states that CNP infrastructure benefits from a presumption in favour of consent, subject to several exceptions.

NATIONAL POLICY STATEMENT FOR RENEWABLE ENERGY INFRASTRUCTURE (NPS EN-3)

- 2.3.5. NPS EN-3 provides policy specific to major renewable energy infrastructure, including offshore wind farms. It sets out the assessment criteria for offshore wind applications, which include the consideration of biodiversity, ecology and habitats, marine physical and historic environment, commercial fisheries, navigation and shipping, other offshore activities, and seascape and visual effects. Expectations around Habitats Regulations Assessment (HRA), climate change resilience and good design are also articulated.

NATIONAL POLICY STATEMENT FOR ELECTRICITY NETWORKS INFRASTRUCTURE (NPS EN-5)

- 2.3.6. NPS EN-5 sets out policy relevant to electricity transmission and distribution systems. It provides a framework of technology-specific impacts to be considered for electricity networks infrastructure including substations and overhead lines. Assessment criteria specific to electricity networks development include the consideration of effects relating to biodiversity and geological conservation, landscape and visual, noise and vibration and electric and magnetic fields (EMFs).
- 2.3.7. NPS EN-5 also supports the principle of coordinated approaches to delivering offshore and onshore electricity transmission to minimise environmental, community and other impacts.
- 2.3.8. In our ExQ1.GEN21 [\[PD-011\]](#) we asked all parties whether, for the purposes of sections 104(2)(a) or 104(3) of the PA2008, NPS EN-5 should be considered as 'relevant national policy' or whether it should be considered to

be an ‘other matter’ for the purposes of section 104(2)(d) of the PA2008. We received one substantive reply from the applicant [[REP3-068](#)].

- 2.3.9. The applicant [[REP3-068](#)] noted that paragraph 1.6.4 of NPS EN-5, under the heading ‘Infrastructure covered by this NPS’, states that it *“will apply to other kinds of electricity networks infrastructure including offshore transmission of any type (defined in section 2.12.4) [and] associated infrastructure”*. The glossary of NPS EN-5 sets out ‘associated infrastructure’ as *“development associated with the NSIP as defined in Section 115 of the Planning Act”*.
- 2.3.10. The applicant considered that the application includes associated development that constitutes transmission infrastructure, that is the OSPs. It therefore concluded that NPS EN-5 is ‘relevant national policy’ for the purposes of s104(2)(a). If the SoS were to conclude otherwise, the applicant maintained NPS EN-5 would be an ‘other matter’ for the purposes of s104(2)(d).
- 2.3.11. The question of whether NPS EN-5 is a ‘relevant national policy’ is a matter of law and thus for the SoS and ultimately the Courts. However, to assist the SoS we make the following comments.
- 2.3.12. In relation to the application as applied for, ‘associated development’ for the purposes of s115 of the PA2008 is that which is associated with the development for which development consent is required and is located in a Renewable Energy Zone. We are content that the OSP(s) fall within this definition and thus NPS EN-5 is a ‘relevant national policy’ for the purposes of s104(2)(a).
- 2.3.13. Should the SoS disagree with us on this point, we consider that it would be an ‘other matter’ for the purposes of s104(2)(d), and thus would be ‘important and relevant’ to the SoS’s decision.

DRAFT REVISED NPS EN-1, NPS EN-3 AND NPS EN-5

- 2.3.14. After the examination closed, on 24 April 2025 the government launched a consultation on revisions to NPS EN-1, NPS EN-3 and NPS EN-5. We have not taken these revisions into account in this report. Principally this is because they were not in front of the examination and interested parties would not have been able to make comment upon them.
- 2.3.15. We do however note the consultation document states under the heading ‘Transitional arrangements’ *“The Secretary of State has decided that for any application accepted for examination before amending the energy NPSs, the current suite of energy NPS, published in 2024, should have effect. ... However, any emerging draft energy NPSs (or those amended but not having effect) are potentially capable of being important and relevant considerations in the decision-making process. The extent to which they are relevant is a matter for the relevant Secretary of State to consider within the framework of the Planning Act 2008 and with regard to the specific circumstances of each development consent order application”*.

2.4. UK MARINE POLICY STATEMENT AND MARINE PLAN

- 2.4.1. The [UK Marine Policy Statement](#) (MPS) provides the policy framework for the preparation of marine plans and how decisions affecting the marine environment should be made. The MPS was jointly adopted in 2011 by the SoS for the Department of Environment, Food and Rural Affairs, Welsh Ministers, Scottish Ministers and the Department for Agriculture, Environment and Rural Affairs (DAERA).
- 2.4.2. The Marine and Coastal Access Act 2009 requires all public authorities taking authorisation or enforcement decisions that affect or might affect the UK marine area to do so in accordance with the MPS unless relevant considerations indicate otherwise. The MPS itself also supports the formulation of marine plans which are required to set out how the MPS will be implemented in specific areas. Marine Plans must be in conformity with any MPS in effect in the marine plan area, unless relevant considerations indicate otherwise.
- 2.4.3. The relevant marine plan in this case is the [North West Inshore and North West Offshore Marine Plan 2021](#) (NWMP) and this, along with the MPS, are appropriate marine policy documents for the purposes of s104(2)(aa) of the PA2008.

2.5. OTHER RELEVANT NATIONAL POLICIES

- 2.5.1. Other relevant government policy which we have taken into account includes:
- Net Zero: The UK's Contribution to Stopping Global Warming (May 2019)
 - The Ten Point Plan for a Green Industrial Revolution (2020)
 - Energy White Paper: Powering our Net Zero Future (2020)
 - Industrial Decarbonisation Strategy (2021)
 - Net Zero Strategy: Build Back Greener (2021)
 - British Energy Security Strategy (2022)
 - Powering up Britain (2023)
 - Clean Power 2030 Action Plan (2024)
 - National Planning Policy Framework (2024 with update in February 2025)
 - Guidance for relevant authorities on seeking to further the purposes of Protected Landscapes (2024)
 - Ministerial Written Statement on Marine Environment made on 29 January 2025
- 2.5.2. Appendix B provides a comprehensive list of other national policies of relevance to the proposed development. These policies are also discussed in more detail as appropriate in each of the relevant chapters of this report.

2.6. ENVIRONMENTAL IMPACT ASSESSMENT

- 2.6.1. On 23 June 2022 the applicant provided a notification under regulation 8(1)(b) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (EIA Regulations) of its intention to provide an Environmental Statement (ES). Therefore, in accordance with regulation

6(2)(a) of the EIA Regulations, we determined that the proposed development was EIA development.

- 2.6.2. On 23 June 2022 the applicant also submitted a scoping report to the SoS under regulation 10 of the EIA Regulations in order to request an opinion about the scope of the ES to be prepared (a scoping opinion) [\[APP-143\]](#).
- 2.6.3. On 2 August 2022 the Planning Inspectorate provided a scoping opinion [\[APP-143\]](#).
- 2.6.4. We are cognisant that changes to the application documentation, including various updates to the ES, were made during the examination. We do not consider these individually or cumulatively to undermine the scope and assessment of the ES.
- 2.6.5. Overall, we consider that the ES, as supplemented with additional information during the examination, is sufficient to enable the SoS to take a decision in compliance with the EIA Regulations.
- 2.6.6. Chapters 5 to 22 of this report summarise the environmental effects under each topic section.

2.7. HABITATS REGULATIONS ASSESSMENT

- 2.7.1. The SoS is the competent authority for the purposes of the Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (The Habitats Regulations).
- 2.7.2. The proposed development is one that has been identified as giving rise to the potential for likely significant effects (LSE) on European sites and hence is subject to a Habitats Regulations Assessment (HRA).
- 2.7.3. As is the convention, and to inform SoS decisions prepared under the PA2008, a separate record of considerations relevant to HRA has been set out in Appendix C of this report, a summary of which can be found in chapter 22.

2.8. TRANSBOUNDARY EFFECTS

- 2.8.1. A transboundary screening under regulation 32 of the EIA Regulations was undertaken on behalf of the SoS on 16 November 2022 [\[OD-007\]](#) following the applicant's request for an EIA Scoping Opinion. Given the information provided in the applicant's Scoping Report, a number of impacts were identified as likely to result in significant transboundary effects on the environment of the European Economic Area (EEA) member states of Belgium and the Republic of Ireland and thus needed taking forward to the EIA process.
- 2.8.2. Following the acceptance of the application and receipt of the application documents, the transboundary screening was updated, and a second screening was published on 26 July 2024. The second screening took into account changes that had been made to the proposed development since it

was first screened, the HRA information submitted in support of the application and transboundary assessments contained within relevant chapters of the ES.

- 2.8.3. The second transboundary screening concluded that the proposed development would not likely have a significant effect on the environment of Belgium or the Republic of Ireland and no new EEA States were identified as being likely to have significant effects on their environment. Both Belgium and the Republic of Ireland were notified and asked to indicate by 6 September 2024 whether or not they wished to participate in the procedure for examining and determining the application under the PA2008 and regulation 32 of the EIA Regulations.
- 2.8.4. The Republic of Ireland responded and asked to be consulted on the application and responses were received from Meath County Council and Birdwatch Ireland [[OD-008](#)]. Meath County Council requested that consideration be given to the potential cumulative effects of the proposed development with that of other various projects in the west and east Irish Sea particularly in respect of visual impact, impact on commercial fisheries and biodiversity and water quality. Birdwatch Ireland requested that the cumulative impacts of the proposed development on migratory seabirds be taken into consideration. Neither party requested nor confirmed that they wished to take part in the examination.
- 2.8.5. The Agentschap Landbouw and Zeevisserij (The Flemish Agency for Agriculture and Fisheries) responded and expressed concerns regarding impacts on Belgian fisheries active in the Morecambe area and welcomed further discussions as part of the examination [[AS-011](#) and [OD-006](#)]. We took the decision to provide the Agentschap Landbouw and Zeevisserij with 'Other Persons' (OP) status in the examination [[PD-008](#)].
- 2.8.6. The regulation 32 duty is an ongoing duty, and on that basis we have considered whether any facts have emerged to change these screening conclusions, up to the point of closure of the examination. We are satisfied, on the basis of the information provided by the applicant and Natural England's agreement that the correct sites had been considered in the HRA (see chapter 22), that the proposed development would not have a LSE on European sites in any EEA States.

2.9. MADE DEVELOPMENT CONSENT ORDERS

- 2.9.1. Within the Explanatory Memorandum (EM) [[REP2-004](#)] the applicant referred to a number of made DCOs. These include:

- The Triton Knoll OWF Order 2013
- The Dogger Bank Teesside A and B OWF (Amendment) (No. 2) Order 2020
- The Hornsea Three OWF Order 2020
- The Norfolk Boreas OWF Order 2021
- The East Anglia ONE North OWF Order 2022
- The East Anglia TWO OWF Order 2022

- The Awel y Môr OWF Order 2023
- The Hornsea Four OWF Order 2023
- The Sheringham Shoal and Dudgeon Extensions OWF Order 2024
- Rampion 2 Offshore Wind Farm Order 2025
- The A122 (Lower Thames Crossing) Development Consent Order 2025

2.9.2. Within the EM the applicant also made reference to drafting contained within the dDCO submitted in connection with the Rampion 2 OWF (whose examination was completed on 6 August 2024). During the examination the applicant also referred to other DCO applications for the Morgan Offshore Wind Project: Generation Assets project and Mona Offshore Wind Project, which were subject to examination at the same time as this application, with the latter now granted.

3. THE PLANNING ISSUES

3.1. INTRODUCTION

- 3.1.1. This chapter sets out the initial assessment of principal issues (IAP) that informed the examination and the main planning issues that are considered by this report. The planning issues are addressed in individual issues-based chapters which follow on from this chapter.

3.2. INITIAL ASSESSMENT OF PRINCIPAL ISSUES (IAP)

- 3.2.1. As required by section (s) 88 of the Planning Act 2008 (PA2008) and Rule 5 of the Infrastructure Planning (Examination Procedure) Rules 2010, we made an IAP arising from the application in advance of the Preliminary Meeting (PM). This formed an initial assessment of the issues based on the application documents and submitted relevant representations (RR). The IAP can be found in Appendix C of the Rule 6 Letter [\[PD-007\]](#) and the list of issues relates to all phases of the proposed development.
- 3.2.2. The IAP was discussed at the PM [\[EV1-001\]](#) where, under this agenda item, no other key topics were identified by those parties in attendance. The applicant confirmed that whilst it was generally in agreement with the list of issues identified, it did query the inclusion of reference to recreational sea users under the topic of 'Other Offshore Infrastructure and Sea Users' as the environmental statement (ES) had not identified any significant effects on recreational users.
- 3.2.3. During the course of the examination, a representation was also made by Bodorgan Marine Limited (BML) [\[REP3-068\]](#) raising concerns that reference had not been given to co-location or aquaculture provision under the topic of 'Commercial Fisheries' and so requested that this be considered as part of the examination.
- 3.2.4. We note the points raised by the applicant and BML. With regard to the applicant's point in relation to recreational sea users, we acknowledge that no significant effects had been identified on such users and therefore agree that this is not a principal issue. With regard to BML's concerns, whilst specific mention of co-location and aquaculture provision was not identified, we consider the effects on aquaculture would be examined under commercial fisheries more generally. Therefore, it was our view that whilst not specifically referenced within the IAP the issue and impacts of the proposed development on aquaculture would be considered as part of the wider principal issue of commercial fisheries.

3.3. THE PLANNING ISSUES IN THIS REPORT

- 3.3.1. In our view the issues raised by Interested Parties (IP) were broadly in line with the IAP and were subject to written and oral questioning during the examination. To facilitate efficient consideration of the relationships between certain issues, and to avoid repetition in analysis, we have varied the order of

our consideration of issues arising from the IAPI. Nevertheless, we have had regard to all important and relevant matters arising from submissions from IPs and have reported on these, as required, within each chapter below.

3.3.2. The main planning issues are reported under the following topic headings:

- principle of the development, including need, alternatives and design
- benthic ecology
- civil and military aviation and radar
- climate change and greenhouse gas assessment
- commercial fisheries
- fish and shellfish ecology
- human health
- marine archaeology
- marine geology, oceanography and physical processes
- marine mammals
- marine sediment and water quality
- offshore ornithology and bats
- onshore cultural heritage
- other offshore infrastructure and other sea users
- seascape, landscape and visual impacts
- shipping and navigation
- socio-economics, tourism and recreation
- traffic and transport

3.3.3. Each chapter follows a similar format where we will summarise the application as made, the case made by IPs and then report on the main issues for each topic. Our findings and conclusions for each topic, including the weight we consider should be attached to each of the planning issues for/ against the making of the Development Consent Order (DCO), are set out at the end of each chapter.

3.3.4. Matters are generally only reported upon if we consider them to be important and relevant to the decision, and they have not been agreed or adequately justified or are controversial. The planning issues chapters consider the effects of both the proposed development alone and cumulatively with other projects/ developments. The applicant's cumulative effects assessment (CEA) considered existing developments and other reasonably foreseeable development-related activities occurring within a similar timeframe to the proposed development. Given the functional link between the proposed development and the separately proposed Morgan and Morecambe Transmission Assets project (M&MTA), the applicant undertook a CEA which considered the proposed development and the M&MTA combined (the 'combined assessment'). Following this a full cumulative assessment of all other relevant plans and projects (including the M&MTA) was undertaken (the 'all projects assessment').

3.3.5. For the 'combined assessment' the applicant had regard to the conclusions made in the Preliminary Environmental Impact Report (PEIR) relating to the M&MTA as this was the latest environmental information available at the time of writing the ES. During the examination, the application for the M&MTA

project was formally submitted and accepted, making its ES publicly available. Similarly, the ESs for other Irish Sea offshore wind projects considered as part of the 'all projects assessment'; that is the Mona Offshore Wind Project and Morgan Offshore Wind Project: Generation Assets, also became available. The applicant therefore conducted a sensitivity review to verify whether the conclusions of its CEA remained valid in light of the latest information available on these projects. This review was set out in the 'Report on Interrelationships with Other Infrastructure Projects' [[REP6-030](#)] and the conclusions reported in each chapter take this latest information into account.

- 3.3.6. The term 'impact' is used throughout this report. However, to clarify, environmental 'impacts' and 'effects' are both considered in this report to be 'environmental effects'.
- 3.3.7. To aid the reader and for consistency, we use the following wording in our assessment of the weight to be attached to each of the planning issues in the planning balance:
- We afford no positive/ negative weight where in our view there are no important and relevant matters relating to that issue or where we consider that matters relating to (issue) are a neutral consideration in the planning balance.
 - We afford a little positive/ negative weight to matters relating to (issue) in the planning balance.
 - We afford moderate positive/ negative weight to matters relating to (issue) in the planning balance.
 - We afford great positive/ negative weight to matters relating to (issue) in the planning balance.
 - We afford very great positive/ negative weight to matters relating to (issue) in the planning balance.
- 3.3.8. Within NPS EN-1 and NPS EN-3 there are situations where they state certain impacts should be given a particular weight. In cases where it is indicated that "significant weight" and "substantial weight" should be applied we have applied 'great weight' and 'very great weight' respectively.
- 3.3.9. Following the individual planning issue chapters, we then go on to consider Habitats Regulations Assessment matters, before coming to our planning conclusions on the case for development consent.
- 3.3.10. There is no request to compulsorily acquire or temporarily possess any land or rights in land as part of the application. However, as the question as to whether Crown land (as defined in the PA2008) was affected by the proposed development was considered within the examination, and there was also an issue as to whether the applicant had the ability to enter into a sub-lease of the application site, we have set out a chapter on these matters, along with considerations relating to the Human Rights Act and the Public Sector Equality Duty. Before a final conclusion, there is also a chapter dealing with the draft DCO.

4. THE PRINCIPLE OF THE DEVELOPMENT, NEED AND ALTERNATIVES

4.1. INTRODUCTION

4.1.1. The application falls to be determined within the criteria set out in section (s) 104 of Planning Act 2008 (PA2008). For the reasons set out in chapter 2 of this recommendation report, we therefore consider the national policy statements (NPSs) set out below to be the relevant national policy statements to which we must have regard in accordance with s104(2)(a) of PA2008. More specifically, in our consideration of the principle, need and alternatives for the proposed development, we have had regard to:

- Overarching National Planning Policy Statement for Energy (NPS EN-1) in particular sections 3 and 4 and notably paragraphs 3.2.1 to 3.2.8; 4.2.10 to 4.2.14; 4.3.10 to 4.3.17 and 4.3.18 to 4.3.29
- National Policy Statement for Renewable Energy (NPS EN-3) in particular section 2 and sub-sections 2.1 and 2.3 and notably paragraphs 2.1.5 to 2.1.7
- National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) in particular section 2, sub-sections 2.2 and 2.9 to 2.15 and paragraphs 2.13.4 to 2.13.6, 2.13.14 to 2.13.16, 2.13.17, 2.14.1, 2.15.1, 2.9.61 to 2.9.64 and 2.11.17 and 2.15.1

4.2. THE NEED FOR THE PROPOSED DEVELOPMENT

THE APPLICATION

4.2.1. Chapter 2 of the environmental statement (ES) [[APP-039](#)] sets out the applicant's needs case for the proposed development. Further detail is also provided in the Planning Development Consent and Need Statement [[REP3-004](#), section 4] and the National Policy Statements Accordance Report [[REP3-010](#)] which support the application.

4.2.2. The Planning, Development Consent and Need Statement [[REP3-004](#)] stated that the proposed development would generate an anticipated 480 megawatts (MW) of low carbon electricity which is equivalent to approximately 2,456 gigawatt hours (GWh) per year. Over the lifespan of the development, which is estimated to be 35 years, this would equate to approximately 85,950GWh of renewable electricity which would save the equivalent of around 35.9 million tonnes of carbon dioxide equivalent (CO₂e) from non-renewable sources [[REP3-004](#), paragraphs 284 and 285].

4.2.3. The applicant's case and justification for the need for the proposed development highlighted that NPS EN-1 was clear that there is a need for renewable energy infrastructure and that there is a demonstrable and overarching policy drive from both planning and other legislative documents to deliver renewable energy. These include:

- British Energy Security Strategy (His Majesty's Government 2022).

- Clean Growth Strategy (Department for Business, Energy and Industrial Strategy (BEIS) 2017).
- Net Zero Strategy: Build Back Greener (2021).
- Energy White Paper: Powering Our Net Zero Future (His Majesty's Government, 2020).
- The Ten Point Plan for a Green Industrial Revolution (2020)

4.2.4. The applicant also referred to NPS EN-3 which confirms that there is an urgent need for new electricity generating capacity and that offshore wind farms are expected to make up a significant proportion of this capacity. More specifically, paragraph 2.8.1 of NPS EN-3 sets out that it is the government's ambition to deploy up to 50 gigawatts (GW) of offshore wind capacity (including up to 5GW floating wind) by 2030, with an expectation that there will be a need for substantially more installed offshore capacity beyond this to achieve net zero carbon emissions by 2050.

4.2.5. The applicant set out that the proposed development would generate electricity from offshore wind and contribute to achieving the government's objectives of transitioning towards net zero, decarbonising the power sector and the delivery of energy that is secure, reliable, affordable and consistent with meeting the target to cut greenhouse gas (GHG) emissions to net zero by 2050. The applicant asserts that the proposed development therefore aligns with the key drivers as set out in NPS EN-1, EN-3 and EN-5.

ISSUES

4.2.6. The need and alternatives for the proposed development did not form part of our initial assessment of principal issues (IAP1) as set out in our Rule 6 letter [\[PD-007\]](#).

4.2.7. No interested parties (IPs) questioned the principle or need for the proposed development during the examination. Similarly, no substantive or important and relevant matters were raised by IPs in relation to the applicant's needs case and so we consider it unnecessary to ask any written questions or examine this further.

4.2.8. At the close of the examination none of the statements of common ground (SoCG) identified the need for the proposed development as a matter 'under discussion' or as 'not agreed'.

ExA's considerations on need

4.2.9. NPS EN-1 states that the Secretary of State (SoS) should start with a presumption in favour of granting consent to applications for energy NSIPs unless any more specific and relevant policies set out in the relevant NPSs clearly indicate that consent should be refused (NPS EN-1, paragraph 4.1.3). It goes on to advise that it is not the role of the planning system to deliver specific amounts or limit any form of infrastructure covered by the NPS and the SoS is not required to consider the specific contribution of any individual project towards satisfying the need established in this NPS (NPS EN-1, paragraphs 3.2.4 and 3.2.8).

- 4.2.10. As secured in requirement (R) 2 of the draft Development Consent Order (dDCO) [\[REP6-002\]](#) the proposed development would comprise up to 35 wind turbine generators (WTGs) that would not exceed a maximum height of 310 metres (m) when measured from the highest astronomical tide (HAT) to the tip of the vertical blade. The exact design and number of WTGs would be finalised post-consent and so consequently the applicant has not specified any detailed output per WTG nor the exact number of WTGs that would be installed at this stage. Consequently, although the applicant has referred to a nominal output capacity of 480MW, this is not secured within the dDCO and instead, the dDCO simply confirms that the authorised development would comprise an offshore wind turbine generating station with an electrical output capacity of over 100MW (as defined in schedule 1, part 1 of the dDCO [\[REP6-002\]](#)) and thus be a nationally significant infrastructure project.
- 4.2.11. Whilst it is not possible to determine with certainty what share of the anticipated 50GW of wind energy the proposed development would contribute, we are satisfied that given its size and scale it would make a meaningful contribution. Furthermore, given our recommendation and the potential reduction to the developable area of the application site, should the Order be made, we do not consider it necessary or compliant with the NPS to restrict or impose any limit on the generation capacity of the proposed development.
- 4.2.12. Having regard to the applicant's case presented in the ES, and in the absence of any objections from the IPs in relation to the need for the proposed development, we agree with the applicant that there is a demonstrable need for energy infrastructure in general. We are satisfied that the proposed development would generate electricity from offshore wind that would contribute to meeting the energy objectives of transitioning towards net zero, decarbonising the power sector and delivering a supply of energy that is secure, reliable, affordable and consistent with meeting the target to cut greenhouse gas (GHG) emissions to net zero by 2050. We therefore judge there to be a compelling need for the proposed development.

4.3. ALTERNATIVES

THE APPLICATION

- 4.3.1. Chapter 4 of the ES [\[APP-041\]](#) set out in detail the site selection process and approach undertaken by the applicant to define the proposed development and the reasonable alternatives considered and assessed as part of this process.

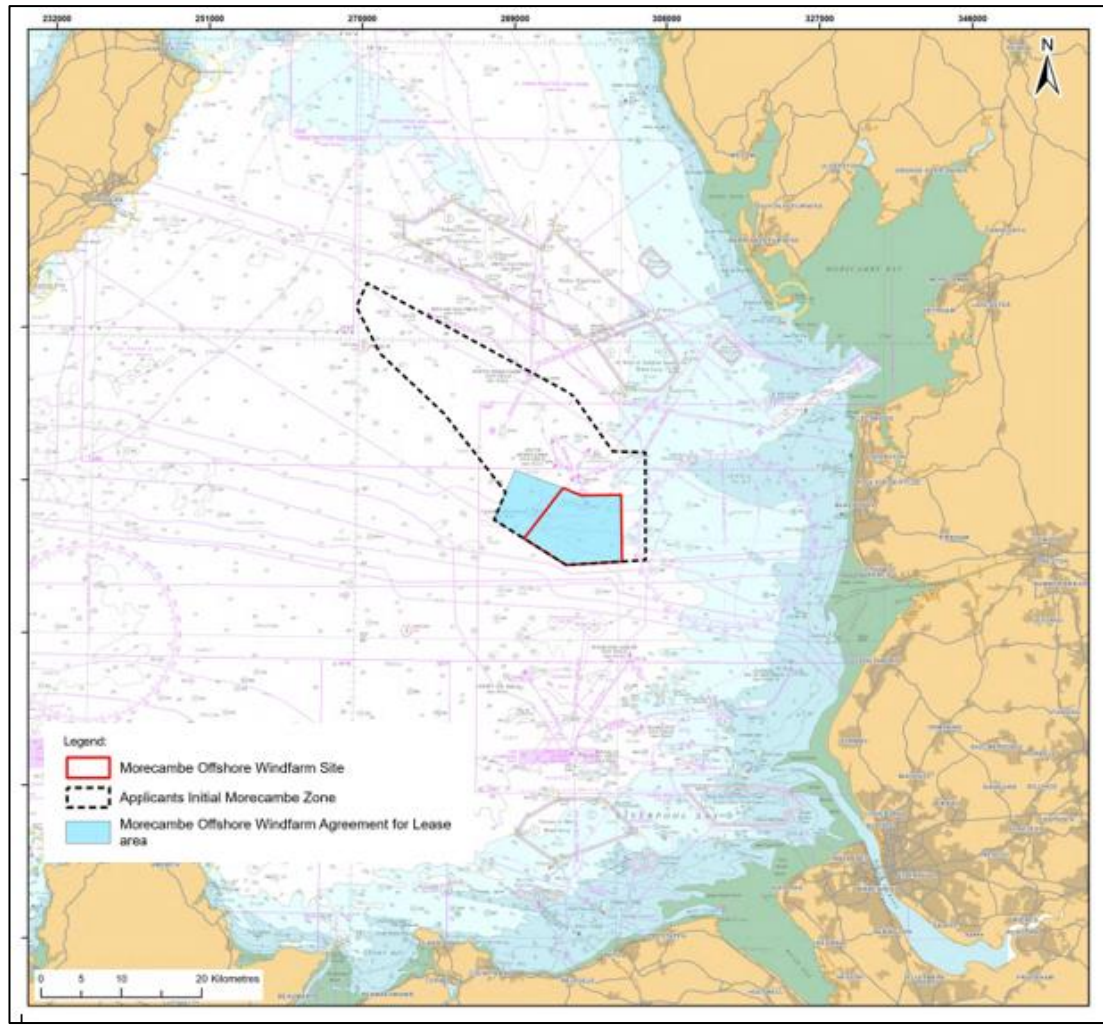
Site selection of offshore array area

- 4.3.2. The applicant explained that The Crown Estate (TCE) identified the North Wales and Irish Sea region as one of four regions around the UK coast suitable for offshore wind development under its Round 4 offshore wind licensing process. Having carried out an initial assessment of the four regions, the applicant selected the North Wales and Irish Sea Bidding Area as its preferred area. This was because the applicant considered it offered a

lower number of constraints overall and an opportunity to co-exist and install generation infrastructure within the vicinity of existing oil and gas infrastructure that is nearing the end of its operational life and thereby minimising disturbance to a previously undeveloped area of the Irish Sea [[APP-041](#), paragraph 4.8]

- 4.3.3. Having identified its preferred bidding area, the applicant then carried out further analysis and modelling in order to define an initial zone for the offshore array area. This took into consideration several factors including physical parameters such as water depth, wave height and ground conditions; landscape and environmental designations (such as Marine Conservation Zones); ecological habitats and species and other sea and air users. This process resulted in the selection of the initial Morecambe Zone which was then further refined having regard to TCE Round 4 bidding rules which subsequently resulted in an Agreement for Lease (AfL) area being awarded by the TCE.
- 4.3.4. A wind farm site of 125 square kilometres (km²) (reflecting the AfL area) was then taken forward and assessed as part of the applicant's Preliminary Environmental Impact Report (PEIR). Following consideration of feedback received on the PEIR and from key stakeholders and users through various Expert Topic Group (ETG) sessions, as well as further analysis of geophysical survey data, environmental information and layout design development, further modifications were made to the proposals. These included:
- reducing the footprint of the wind farm site from 125km² to 87km²
 - increasing the sea room between the proposed development and other proposed offshore wind projects in the Irish Sea to mitigate impacts on existing ferry and shipping routes
 - removing the Calder oil and gas platform from within the wind farm site boundary to reduce interactions with the gas field operations including helicopter approaches to the platform
 - removing the western section of the AfL area as this had the highest presence of megaripples and sandwaves. The removal of these features would reduce the level of seabed preparation required
- 4.3.5. The refined and reduced windfarm site of 87km² was then taken forward and assessed as part of the applicant's ES. This is shown in Figure 5.

Figure 5: Agreement for Lease area and the original and revised proposed wind farm site (extract taken from figure 4.1 of ES [APP-089])



Design alternatives and layout

- 4.3.6. As well as having considered a number of alternatives as part of the site selection process, the applicant explained that it has also given consideration to a number of alternatives to the design of the proposed development. This included the potential use of floating technology rather than the use of fixed foundation technology; however, this was discounted due to water depths at the site not being suitable [APP-041, paragraph 4.31].
- 4.3.7. The final design and layout of the wind farm site would be determined post-consent. Therefore, for the purposes of the ES, the applicant adopted a Project Design Envelope (PDE) parameter-based approach for assessing the potential impacts of the development in the ES. The PDE includes two WTG scenarios (larger or smaller WTGs) and considered a number of foundation options for both. The PDE was refined in response to consultation feedback on the PEIR and, as a result of further environmental analysis, revisions were made including to the embedded mitigation measures built into the design of the proposed development. These revisions included:

- reducing the maximum number of WTGs from 40 to 35 and therefore the number of foundations required to interact with the seabed
- reducing the size of the largest WTG to be installed from a blade tip height of 345m to 310m above HAT
- increasing the minimum WTG rotor clearance from 22m to 25m HAT to reduce impacts on ornithological receptors
- a commitment to undertake piling activities at only one foundation location at a time to minimise noise impacts and disturbance
- a commitment to minimise the use of cable protection as far as practicable

4.3.8. At deadline (D) 3 the applicant also submitted its ‘Sulphur Hexafluoride Report’ [\[REP3-074\]](#) which outlines the applicant’s approach to managing the use of sulphur hexafluoride (SF6) as part of the proposed development. Within this the applicant explained that its worst-case scenario assumed WTGs and OSPs would use SF6-reliant Gas Insulated Switchgear (GInS) technology because it considered the use of Air Insulated Switchgear (AInS) as not commercially favourable or practical to offshore installations due to the limited electrical clearances.

ISSUES

4.3.9. At this stage the applicant has only provided notional plans of the proposed development [\[REP3-068\]](#), appendix A, figures 1 and 2] with the final layout for the location of WTGs or offshore substation platforms (OSP) to be confirmed post consent. As discussed more fully in chapters 11, 22 and 23 and appendix C, there are two major constraints to the layout of the proposed development. These are the existing oil and gas infrastructure to the west and the Liverpool Bay/ Bae Lerpwl Special Protection Area (SPA) (Liverpool Bay SPA) to the east.

4.3.10. In light of representations received from Spirit Energy Production UK Limited (Spirit), Chrysaor Resources (Irish Sea) Limited (Harbour) and Natural England, we asked the applicant to produce plans to illustrate the potential impact and effect that different buffers from the original Liverpool Bay SPA and the oil and gas platforms would have on the potential layout and number of WTGs that could be accommodated within the site [\[PD-018\]](#), ExQ3GEN3 and ExQ3GEN4]. A series of plans were produced by the applicant in response to this request [\[REP5a-057\]](#) and we have had regard to these, its associated comments and the views of the IPs in response to those plans.

4.3.11. For the reasons as set out in chapters 11, 22 and 23 and following a mitigation hierarchy approach, we have concluded and recommended that a buffer of 7.5 kilometres (km) should be imposed from the original boundary of the Liverpool Bay SPA at the eastern side of the site to ensure that there is no adverse effect on integrity (AEoI) on the red-throated diver qualifying feature of the Liverpool Bay SPA as part of the national site network. We have also recommended that there should be an initial buffer of 3.76 nautical miles (nm), subsequently reducing to an enduring buffer of 1.9nm, from oil and gas platforms to the north and west of the site until decommissioning of the oil and gas infrastructure is complete. Although our recommendation

would reduce the developable area within the application site and prevent the applicant from implementing its proposals in the form that it is perhaps expecting, we are satisfied that, in line with paragraph 4.3.23 of NPS EN-1, even with the alternative buffers in place there is a realistic prospect that the same infrastructure capacity within the same timescales could be achieved. Furthermore, although the alternative buffers were not among the main alternatives studied by the applicant as part of its ES, they have nevertheless been considered as part of our examination and so, in line with paragraph 4.3.25 of NPS EN-1, can be considered as important and relevant to the decision.

ExA's considerations

- 4.3.12. The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (EIA Regulations) states, in schedule 4, that an ES must include a description of the reasonable alternatives studied by the developer and an indication of the main reasons for selecting the chosen option. NPS EN-1 does not contain any general requirement to consider alternatives or to establish whether the proposed development represents the best option (NPS EN-1, paragraph 4.3.9). However, section 4.3 of NPS EN-1 also states that an applicant must provide information proportionate to the scale of the project, ensuring the information is sufficient to meet the requirements of the EIA Regulations, and that applicants are obliged to include in their ES information about the reasonable alternatives they have studied. This should include an indication of the main reasons for the applicant's choice, taking into account the environmental, social and economic effects and including, where relevant, technical and commercial feasibility.
- 4.3.13. Whilst our recommended Development Consent Order (rDCO), as set out in appendix E, could result in an alternative development to that proposed and originally considered by the applicant, we are satisfied that the applicant has appropriately assessed all reasonable alternatives for the location of the proposed wind farm site and that the proposed site represents the most appropriate location having regard to environmental and technical constraints considered.
- 4.3.14. We are also content that its consideration of alternatives is sufficient for the purposes of the EIA and that appropriate consideration has been given to avoiding and/ or mitigating significant environmental effects.
- 4.3.15. As concluded within chapters 11, 22 and 23 of this report, subject to the implementation of the mitigation and the provisions as set out within our rDCO, an adverse effect on integrity (AEoI) can also be excluded for the Liverpool Bay SPA, which is part of the national site network, as a result of the proposed development, either alone or in combination with other plans or projects. Therefore, we are satisfied that no alternative locations or sites exist for the offshore wind farm array that would present a feasible alternative solution, and that the consideration of alternatives is sufficient for the purposes of the SoS's Habitats Regulations Assessment.

4.4. CONCLUSIONS

- 4.4.1. Notwithstanding the consideration of project-specific issues set out elsewhere in this report, we are satisfied that there is a clear and compelling need for the proposed development and therefore, in line with paragraph 4.1.3 of NPS EN-1, the SoS will start with a presumption in favour of granting consent. We are content that the needs case has been met and therefore in line with paragraph 3.2.7 of NPS EN-1 we afford this very great positive weight in the planning balance.
- 4.4.2. We are also content that the applicant has explored reasonable alternatives in terms of both the location and extent of the offshore array area within the constraints imposed by TCE's leasing process. We are also satisfied that options for coordination have been considered and evaluated appropriately and that the other requirements of NPS EN-1, NPS EN-3 and NPS EN-5 have been met, as cited in paragraph 4.1.1 of this report.

5. BENTHIC ECOLOGY

5.1. INTRODUCTION

- 5.1.1. This chapter considers the effects of the proposed development on benthic ecology. Benthic ecology was identified as a principal issue in our Rule 6 letter [\[PD-007\]](#) and forms part of our much broader consideration of issues relating to biodiversity and ecology.
- 5.1.2. Effects on Special Areas of Conservation (SAC) in a Habitats Regulations Assessment (HRA) context are discussed separately in the Report to Inform Appropriate Assessment (RIAA) [\[REP5a-009\]](#) and are reported on in chapter 22 of this report.
- 5.1.3. In our consideration of benthic ecology, we have had regard to:
- the requirements of the following designated national policy statements
 - Overarching National Planning Policy Statement for Energy (NPS EN-1) in particular section 5.4
 - National Policy Statement for Renewable Energy (NPS EN-3) in particular Section 2.8
 - National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) in particular section 2.11 and notably paragraph 2.11.13
 - the relevant policies of the North West Inshore and North West Offshore Marine Plan (NWMP) including policies, NW-BIO-1, NW-BIO-2, NW-CAB-1, NW-MPA-1 and NW-INNS-1
 - any matters prescribed in relation to the development
 - any other important and relevant matters

5.2. THE APPLICATION

- 5.2.1. The applicant's assessment in relation to impacts on benthic ecology was principally set out in chapter 9 of the environmental statement (ES) [\[REP5a-017\]](#) which was supported by a series of figures [\[APP-093\]](#). Additional information to support the chapter was contained within appendix 9.1 which contained the Benthic Characterisation Survey [\[APP-063\]](#) and appendix 9.2 which contained the Marine Evidence-based Sensitivity Assessment [\[APP-064\]](#).
- 5.2.2. The assessment was informed by, and took into account, the findings and conclusions of other relevant topics and chapters of the ES. Those chapters included:
- Chapter 7 'Marine Geology, Oceanography and Physical Processes' [\[REP5a-015\]](#).
 - Chapter 8 'Marine Sediment and Water Quality' [\[REP2-010\]](#).
 - Chapter 10 'Fish and Shellfish Ecology' [\[REP3-016\]](#).
 - Chapter 11 'Marine Mammals' [\[REP5a-019\]](#).
 - Chapter 12 'Offshore Ornithology' [\[REP6-009\]](#).

5.2.3. The following documents are also relevant and were subject to discussions with stakeholders during the examination:

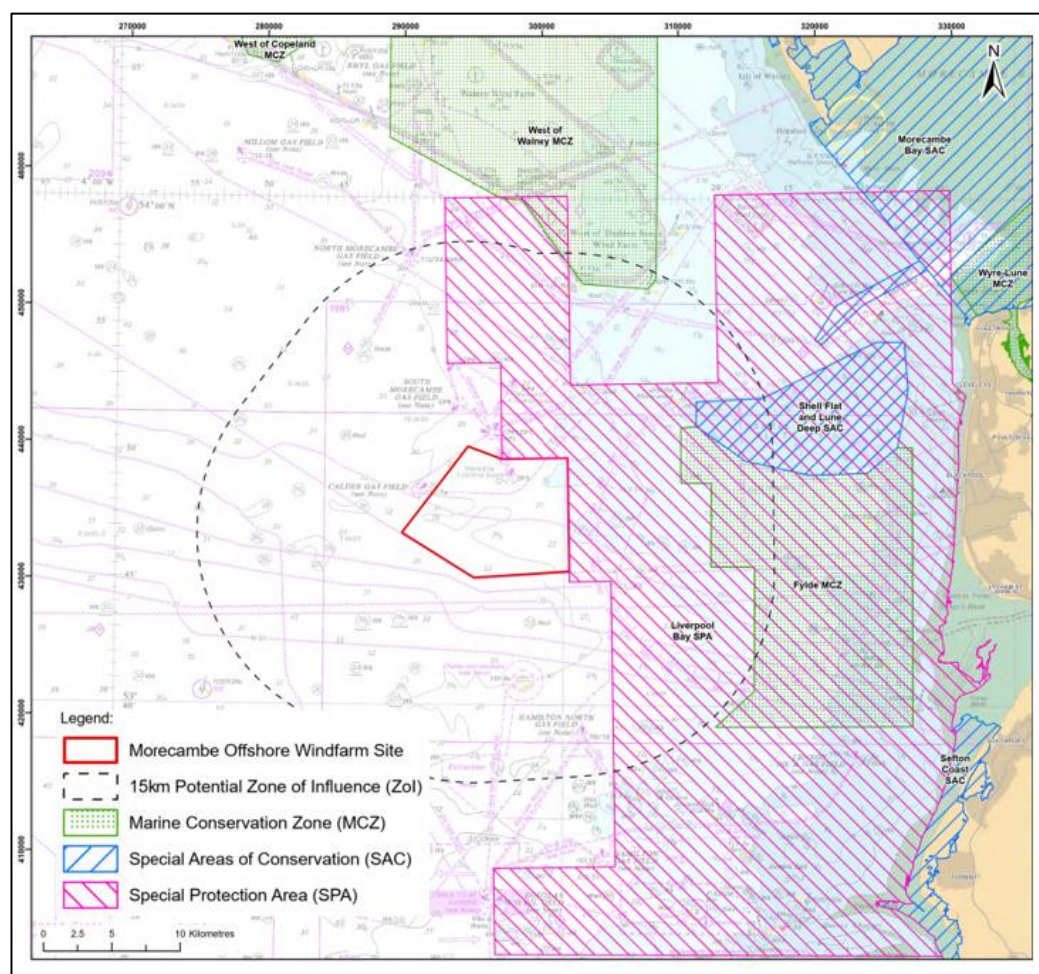
- Outline Project Environmental Management Plan (oPEMP) [[REP5a-024](#)]
- In Principle Monitoring Plan (IPMP) [[REP6-017](#)]
- Outline Construction Method Statement (oCMS) [[REP6-034](#)]

BASELINE

5.2.4. The study area for benthic ecology comprised the footprint of the wind farm site and a 15 kilometre (km) Zone of Influence (ZoI) around it. The applicant explained that direct effects on benthic ecology were likely to occur within the footprint of the proposed wind farm site whilst indirect effects may extend beyond the site boundary. The 15km ZoI therefore took into account the extent of one excursion of the spring tidal ellipse (which is 10km). The applicant considered this to be the maximum distance over which changes as a result of physical processes and sediment redeposition could realistically occur.

5.2.5. The proposed wind farm site, 15km ZoI and the proximity of designated sites to the site are shown in Figure 6.

Figure 6: Proposed wind farm site, 15km Zone of Influence and location of designated sites (extract of Figure 9.14 of [[APP-093](#)])

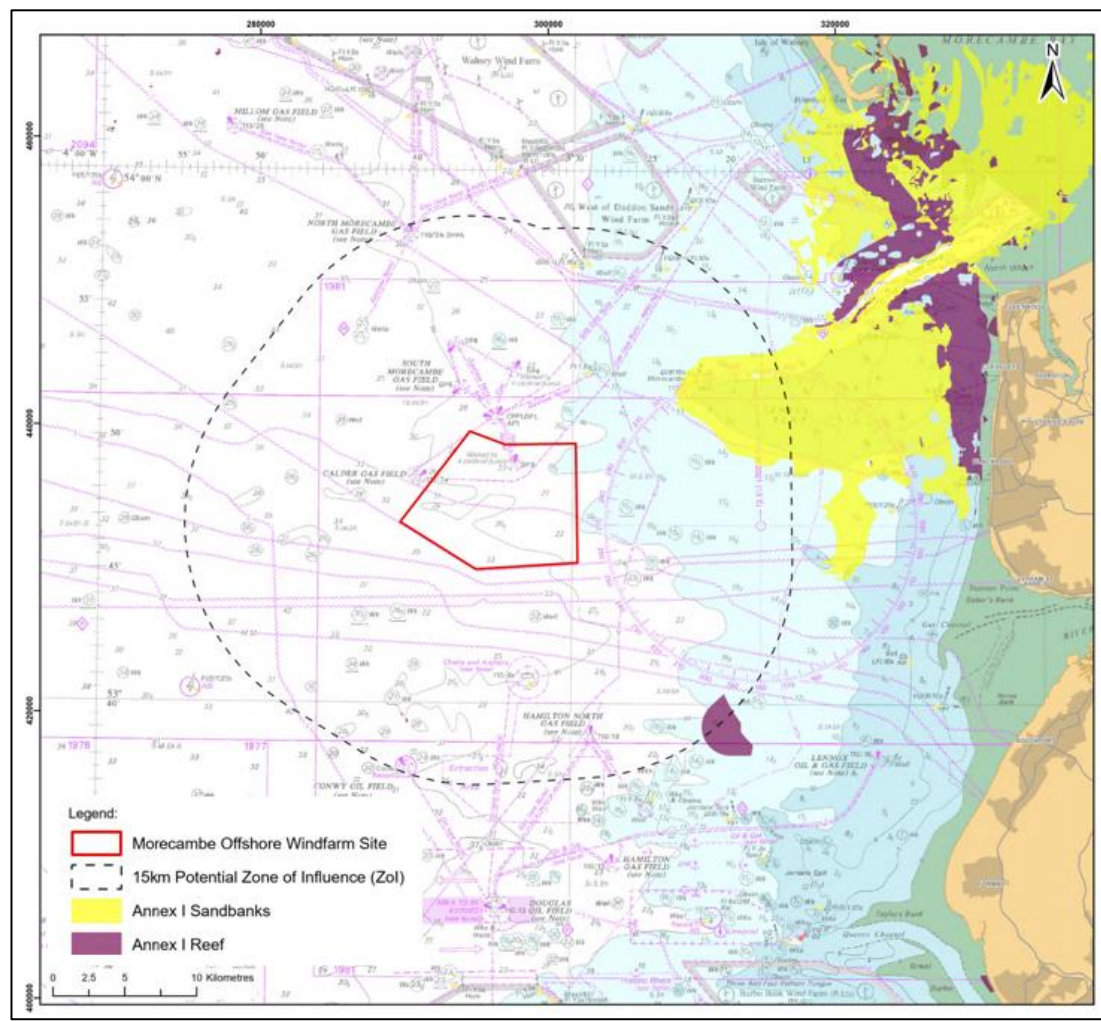


- 5.2.6. The methodology and baseline information used to carry out the impact assessment were discussed as part of the Marine Ecology Expert Topic Group meetings which included Natural England (NE) , Marine Management Organisation (MMO), Wildlife Trusts as well as other interested marine bodies and stakeholders [[REP5a-017](#), paragraph 9.9]. The baseline was based on the findings of a site-specific benthic characterisation survey undertaken in May/ June 2022 and supplemented by further information sourced from existing datasets, records and reports. As part of the site-specific survey a total of 50 sampling stations distributed across the original 125 square kilometre (km²) Agreement for Lease (AfL) area were identified. Camera imagery and videos were used to assess the suitability of each station for taking grab samples, the epifauna (that is organisms that live on the surface of the seabed and/ or marine structures) and the habitat types present. Grab samples taken were then used to analyse macrofaunal abundance/ biomass and particle size distribution. An additional sample was taken at 20 of the original 50 stations to test for a suite of contaminants.
- 5.2.7. The subsequent reduction of the wind farm site boundary reduced the number of station samples within the 87km² wind farm site to 36 (of which 14 had been tested for contaminants) and a further 14 stations within 5km of the western boundary. The results of the site-specific survey are contained within appendix 9.1 of the ES [[APP-063](#)].
- 5.2.8. In addition to the site-specific survey, the applicant used a number of other data sources to further its understanding of the benthic environment within the wider eastern Irish Sea study area. These sources included datasets taken from the Marine Data Exchange and Centre for Environment, Fisheries and Aquaculture (Cefas) Onebenthic portals as well as benthic baseline surveys undertaken in association with earlier offshore wind projects which are now operational within the Irish Sea. The applicant explained that the assessment also took into account the benthic subtidal baseline survey that formed part of the Preliminary Environmental Impact Report (PEIR) for the Morgan and Morecambe Offshore Wind Farms Transmission Assets (M&MTA) project. A list of the data sources used was set out in table 9.5 of [[REP5a-017](#)].
- 5.2.9. The baseline data showed that the seabed across the wind farm site is dominated by sand with slightly coarser sediments being found within the southwest part of the site. Chemical analysis of the sediments demonstrated that contamination levels were low. The applicant considered that the benthic communities present were typical of sandy sediment habitats in the wider Irish Sea area.
- 5.2.10. In terms of habitats of conservation interest, the applicant confirmed the presence of a Habitats Directive Annex I sandbank habitat located approximately 8km to the east of the site which encompasses the Fylde Marine Conservation Zone (MCZ) and Shell Flat and Lune Deep SAC. There was also a small Annex I reef in an isolated area located approximately 13.5km to the southeast of the windfarm site and a more extensive area located at, and adjacent to, Lune Deep and along the Fylde coastline which

is outside the assessment ZoI. The location of these is shown in Figure 7 (below).

- 5.2.11. In terms of species of conservation interest, the baseline data did not record or evidence the presence of any species listed in the Conservation for the Protection of the Marine Environment of the North-east Atlantic (OSPAR) list of threatened and/ or declining species or species of principal importance/ Biodiversity Action Plan (BAP). Similarly, no species were reported within 15km of the wind farm site in the other studies that were used to inform the baseline assessment [REP5a-017, paragraph 9.114]. This includes sea pens (which are a colonial invertebrate animal species on the OSPAR list and which are a Feature of Conservation Interest (FOCI)) despite areas of burrowed mud across the site being identified on seabed imagery gathered during the benthic survey. The density of those burrows met the criteria to be classed as the deep-water mud-associated with the FOCI 'sea-pen and burrowing megafauna communities'.

Figure 7: Location of Annex I sandbanks and reefs to wind farm site (extract of Figure 9.13 of [APP-093])



MITIGATION

- 5.2.12. The applicant incorporated what it described as embedded mitigation features into the design of the proposed development to reduce the effects of impacts. These were summarised in table 9.3 of chapter 9 of the ES [\[REP5a-017\]](#).
- 5.2.13. The applicant did not propose or deem any additional mitigation measures as necessary to reduce residual effects identified in relation to impacts on benthic ecology receptors. However, in response to comments received during the examination, the applicant committed to carrying out pre-construction surveys (alongside drop-down video as required) that would allow for the identification of, and micro-siting around, any potentially unrecorded Annex I biogenic or geogenic reef features. The applicant also committed to carry out post-construction monitoring for the colonisation of hard substrata by invasive non-native species (INNS).
- 5.2.14. The embedded mitigation measures are secured as commitments through requirement (R) 2 of schedule 2 of the draft Development Consent Order (dDCO) and condition 1 of the draft Deemed Marine Licence (dDML) in schedule 6 of the dDCO. The applicant's commitment to carry out pre-construction surveys and INNS monitoring are set out within the IPMP [\[REP6-017\]](#) and further commitments relating to seabed preparation activities and works are contained within the oCMS [\[REP6-034\]](#) and oPEMP [\[REP5a-024\]](#) and secured by conditions 9, 14, 15 and 16 of the dDML within schedule 6 of the dDCO [\[REP6-002\]](#).

ASSESSMENT OF EFFECTS

- 5.2.15. The realistic worst-case scenarios used in undertaking the assessment for each phase of the proposed development are set out in table 9.2 of chapter 9 of the ES [\[REP5a-017\]](#).
- 5.2.16. The potential impacts identified and assessed by the applicant for each phase of the development differ slightly.
- 5.2.17. For the construction and decommissioning phases, the potential impacts identified and assessed by the applicant were:
- physical disturbance to seabed habitat
 - increase suspended sediment concentration (SSCs) and subsequent deposition
 - underwater noise and vibration
 - introduction and spread of INNS
 - removal of introduced hard stratum (decommissioning phase only)
- 5.2.18. For the operation and maintenance phase, the potential impacts identified and assessed by the applicant were:
- change in habitat type due to presence of offshore wind farm (OWF) subsurface infrastructure

- change in hydrodynamic conditions due to presence of OWF subsurface infrastructure
- electromagnetic field (EMF) from subsea cables
- increases in seabed temperature from subsea cables
- temporary physical disturbance of seabed
- temporary increases in SSCs/ sedimentation
- underwater noise and vibration
- colonisation of infrastructure from INNS

5.2.19. A summary of the potential impacts assessed and the conclusions reached is provided in table 9.32 of chapter 9 of the ES [\[REP5a-017\]](#).

Construction and decommissioning effects

Physical disturbance to seabed

- 5.2.20. The applicant explained that effects from construction/ decommissioning activities associated with seabed preparation/ removal of infrastructure, cable laying/ removal and vessel use would be restricted to the habitats and biotopes present with the footprint of those works. The applicant explained that it is not possible to undertake a detailed assessment of potential decommissioning impacts at this stage and therefore the assessment only considered impacts at a high level. A further assessment would therefore be undertaken at the time of decommissioning and this would then take into account any new designations and/ or changes to boundaries of existing designations that may have occurred in the intervening period. Notwithstanding this, the applicant considered the impacts and effects of decommissioning activities would be similar to those for the construction phase.
- 5.2.21. The applicant explained that the baseline evidence did not identify any designated habitats/ biotopes as being present within the application site and that the total footprint of seabed disturbance was anticipated to be around 2.4km² which represents approximately 2.8% of the application site area [\[REP5a-017\]](#), table 9.2]. The area of potential disturbance was therefore small when considered in the context of the unaffected areas of the wind farm site and very small when considered in the wider context of the eastern Irish Sea. The applicant submitted that any effects from construction/ decommissioning activities would be short-term and temporary, and once completed the habitats and species affected would be able to recover.
- 5.2.22. The applicant therefore concluded that the impacts of physical disturbance during the construction and decommissioning phases would have a 'minor adverse' effect on the biotopes and habitats present within the wind farm site and so be not significant [\[REP5a-017\]](#), paragraphs 9.173 and 9.354]. The applicant also concluded that there would be 'no change' to benthic features of the Fylde MCZ or West of Walney MCZ [\[REP5a-017\]](#), paragraphs 9.174 and 9.355].

Increase SSCs and subsequent deposition

- 5.2.23. Increases in SSCs have the potential to affect benthic ecology receptors by blocking feeding apparatus as well as by smothering sessile species following the redeposition of sediments. The applicant assumed a worst-case scenario of approximately 1.1 million cubic metres of sediment would be disturbed and may potentially be brought into suspension during construction activities [[REP5a-017](#), table 9.2]. During the decommissioning phase, increases in SSCs and sediment deposition may arise during the removal of subsea installations, such as inter-array and platform link cables, and through the use of jack-up vessels. The applicant assumed increases in SSCs and sediment deposition during decommissioning would be similar to that which might arise during the construction phase. However, should the decision be taken to retain subsea cables in situ post-decommissioning then potentially the volumes could be less.
- 5.2.24. The applicant submitted that any disturbance as a result of the construction/ decommissioning works would be temporary and intermittent over the duration of the construction and decommissioning periods and that any increases in SSCs around each foundation/ location or area of works would last a matter of hours to days. In assessing the potential impacts, the applicant drew upon the findings of chapters 7 'Marine ecology, oceanography and physical processes' [[REP3-012](#)] and 8 'Marine sediment and water quality' [[REP2-010](#)] of the ES which demonstrated that the sediment in the wind farm site is principally composed of sand with low mud content. The assessment concluded that any coarser components of the sediment disturbed as a result of construction/ decommissioning activities would fall out of suspension rapidly, remaining local to its point of release, and form small mounds on the seabed (i.e. tens of centimetres in height). Finer material would be expected to fall out within the tidal ellipse (approximately 10km) and result in very minor bed level changes (i.e. millimetres). Based on the site-specific sampling findings, contamination levels within the wind farm site are not considered to be of significant concern and therefore any disturbed sediments would present a low risk in terms of potential impacts on marine benthic, fish and shellfish communities.
- 5.2.25. The applicant concluded that any increases in SSCs and subsequent deposition of sediments during the construction and decommissioning phases would have a 'negligible' to 'minor adverse' effect on the biotopes and habitats that are present within the proposed development ZOI and so would not be significant in EIA terms [[REP5a-017](#), paragraphs 9.197 and 9.359].
- 5.2.26. In respect of impacts on designated sites, given the separation distance between the wind farm site and the Fylde MCZ or West of Walney MCZ, the applicant considered any sediment disposal would be indistinguishable from background levels and within the range of natural variability. As a consequence, the assessment concluded increases in SSCs and subsequent deposition would have a 'negligible adverse' effect on the benthic features of designated sites and so would not be significant in EIA terms [[REP5a-017](#), paragraphs 9.204 and 9.362].

Underwater noise and vibration

- 5.2.27. Pile driving activities associated with the installation of WTG and OSP foundations and the use of vessels and/ or cutting activities required to remove substructures were identified as having the potential to give rise to noise and vibration impacts on benthic ecology receptors. Whilst there would also be noise and vibration from other activities such as dredging during seabed preparation, ploughing for cable installation and placement of scour/ cable protection, the applicant considered that these would not likely have a significant effect on benthic ecology. This was because the benthos present within the study area were likely to already be used to ambient noise created by existing activities such as shipping vessel traffic and aggregate dredging.
- 5.2.28. The applicant considered that the installation of the largest monopile foundations would have the potential to give rise to the greatest impacts in terms of noise and vibration during the construction phase. The applicant explained that this was because the installation of the largest monopiles would require the largest hammer energy to be used and so give rise to higher levels of noise and vibration. However, breaks between installations as well as downtime as a result of adverse weather would mean impacts from noise and vibration would not be constant and so temporary and only experienced for part of the construction phase. During the decommissioning phase, the applicant submitted that the sources of underwater noise and vibration would be significantly less than that during the construction phase given there would be no need for any piling activities.
- 5.2.29. The applicant concluded that changes in noise and vibration during the construction phase would have a 'minor adverse' effect on the biotopes and habitats that are present within the proposed development ZOI and so would not be significant [REP5a-017, paragraph 9.214]. During the decommissioning phase, the changes in noise and vibration were assessed as having a 'negligible adverse' effect which is not significant in EIA terms [REP5a-017, paragraph 9.366].
- 5.2.30. In respect of impacts on designated sites, whilst underwater noise and vibration could extend some distance from source, the applicant considered that impacts would be minimal and below levels which might be injurious to benthic fauna. As a consequence, the applicant concluded that changes in noise and vibration levels during the construction and decommissioning phases would have a 'negligible adverse' effect on the benthic features of designated sites and so would not be significant in EIA terms [REP5a-017, paragraphs 9.218 and 9.396].

Introduction and spread of INNS

- 5.2.31. The introduction and/ or spread of INNS could potentially lead to changes in the benthic communities as they can compete for space, prey on native species or introduce new pathogens. The applicant identified the primary pathway for the potential introduction of INNS to arise from the use of vessels, ship ballast water and as a result of the introduction of infrastructure that originates from regions that are ecologically distinct from the eastern

Irish Sea. The potential risk was therefore considered to be greatest during the construction and decommissioning phases when vessel movements would be at their greatest and when infrastructure was first being installed.

- 5.2.32. The applicant explained that mandatory best-practice biosecurity measures in line with international and national regulations would be implemented, along with any other biosecurity measures, which would be set out and secured as part of the Project Environmental Management Plan (PEMP). An oPEMP [REP5a-023] was submitted as part of the application and discussed during the examination. Condition 9(1)(e) of the dDML within schedule 6 of the dDCO [REP6-002] requires the applicant to submit a final version of the PEMP for approval by the MMO in consultation with other relevant stakeholders.
- 5.2.33. With the INNS prevention measures in place the applicant concluded that potential INNS introduction and/ or spread during the construction and decommissioning phases would have a 'minor adverse' effect on benthic habitats and biotopes within the Zol and so would not be significant in EIA terms [REP5a-017, paragraphs 9.230 and 9.373]. Similarly, the impact of INNS on benthic features of designated sites was also predicted to have a 'minor adverse' effect and so would not be significant in EIA terms [REP5a-017, paragraphs 9.234 and 9.376].

Removal of introduced hard stratum (decommissioning phase only)

- 5.2.34. The presence of physical infrastructure such as foundations, scour and cable protection during the lifetime of the proposed development could potentially be colonised by epifauna. The decision as to whether subsea structures would be retained in situ post decommissioning has yet to be made and so the applicant explained that it was not possible to undertake a detailed assessment of the potential impacts of decommissioning works on benthic receptors at this stage in the process. However, for the purposes of the assessment, it was assumed that subsea structures would be removed and consequently the removal of any habitat and communities that may have colonised the hard substrate.
- 5.2.35. The assessment assumed the worst-case loss of habitat would equate to around 0.51km² which is the combined area of the WTG/ OSP foundations, scour protection and cable protection [REP5a-017, table 9.2]. Whilst the removal of this substrate would result in a direct and localised decrease in biodiversity, the assessment stated that this would allow recolonisation of the original soft sediment seabed and therefore return of the site to its original pre-construction condition. However, the assessment also acknowledged that should biogenic (Annex I) reef, or other features of conservation interest be identified to exist on the hard substrate at the time of decommissioning then an appropriate approach would be agreed with the relevant authority(ies) at that time.
- 5.2.36. Consequently, whilst it is noted that the impacts would be reassessed at the time of decommissioning, the assessment concluded that the loss of artificial hard substrate during the decommissioning phase would have a 'negligible

adverse' effect on the general benthic community and so would not be significant in EIA terms [REP5a-017, paragraph 9.349]. As the impacts would be restricted to the footprint of the decommissioning activities the applicant concluded there would be 'no change' to existing designated sites as there would be no pathway for effect to those sites [REP5a-017, paragraph 9.350].

Operation and maintenance effects

Change in habitat type due to presence of subsurface infrastructure

- 5.2.37. The presence of physical structures such as foundations, scour and cable protection would introduce an artificial hard substrate that would change the habitat type for part of the site from the soft sediment habitats as described in the baseline. As it is not known whether all structures would be removed or retained in situ post decommissioning, the applicant explained that a precautionary approach had been adopted which assumed all structures would be retained and therefore any change, and impact in terms of loss of area of soft substrate habitat would be permanent.
- 5.2.38. Based on the worst-case scenario the footprint of permanently retained infrastructure would equate to around 0.51km² which the applicant stated represents approximately 0.6% of the total seabed area within the wind farm site [REP5a-017, paragraph 9.244]. Although permanent, the applicant considered the effect would be barely discernible when considered in the context of the wider study area and so the direct impact of the physical presence of permanent infrastructure and changes to habitat type would have a 'minor adverse' effect and so would not be significant in EIA terms [REP5a-017, paragraph 9.247].
- 5.2.39. Given there is no overlap with the wind farm site and designated sites, the applicant concluded that there would be 'no change' to benthic features of the Fylde MCZ or West of Walney MCZ [REP5a-017, paragraphs 9.248].

Change in hydrodynamic conditions due to presence of subsurface infrastructure

- 5.2.40. The applicant explained that the presence of WTG and OSP foundation structures on the seabed/ water column may impact tidal and wave regimes and therefore contribute to changes in seabed morphology and availability of benthic habitat due to alteration of sediment transport patterns.
- 5.2.41. In assessing the potential impacts, the assessment drew upon the findings of chapter 7 'Marine ecology, oceanography and physical processes' [REP3-012] which demonstrated that any changes in terms of the height and/or phase of water levels, the speed of waves and effects on current flows as a result of the presence of infrastructure would be restored to baseline conditions downstream of each obstacle and extend no further than the excursion of one spring tidal ellipse (approximately 10km) [REP5a-017, paragraph 9.251]. The applicant therefore submitted that effects may be discernible within the near-field and only barely discernible out to the extent of the excursion of one tidal ellipse.

- 5.2.42. The applicant therefore concluded that changes in the hydrodynamic regime due to the physical presence of WTG and OSP foundation structures would have a 'negligible' to 'minor adverse' effect on benthic habitats and biotopes within the ZoI and so would not be significant in EIA terms [REP5a-017, paragraph 9.260]. The applicant concluded that there would be a 'minor adverse' effect on the benthic features of designated sites and so this would also not be significant in EIA terms [REP5a-017, paragraph 9.265].

EMF and increases in seabed temperature from subsea cable

- 5.2.43. The applicant acknowledged that EMF and radiated heat associated with the transmission of electricity through subsea cables could attract, or repel, electromagnetic and heat sensitive benthic fauna and therefore result in changes to the existing baseline throughout the life of the development. Based on the worst-case scenarios the applicant explained that a maximum of 70km of inter-array cables and 10km of platform link cables would be installed within the footprint of the site. Taking into account the area either side of any cables the total area affected could range from 0.08km² to 0.16km² which represents 0.2% of the total seabed area within the windfarm site [REP5a-017, paragraph 9.275]. To mitigate the potential effects of EMF the applicant explained that it proposes to bury cables wherever possible and where burial is not suitable then cable protection would be used which would increase the distance between receptors and the EMF source.
- 5.2.44. Based on the baseline evidence the applicant concluded that the impact of changes in EMF would have a 'negligible adverse' effect on benthic habitats and biotopes within the ZoI, which it considered was not significant in EIA terms [REP5a-017, paragraph 9.278]. Given there is no overlap with the wind farm site and designated sites, it concluded there would be 'no change' to benthic features of the Fylde MCZ or West of Walney MCZ [REP5a-017, paragraphs 9.280].
- 5.2.45. In respect of the impact of temperature increases in sediment within close proximity to subsea cables, the applicant concluded that the effects on benthic habitats and biotopes would be 'negligible' to 'minor adverse' and so not significant in EIA terms [REP5a-017, paragraph 9.292]. The applicant concluded that there would be 'no change' to benthic features within designated sites given that any increases in temperature would be very localised in nature [REP5a-017, paragraph 9.293].

Temporary physical disturbance of seabed, temporary increases in SSCs/ sedimentation and impacts of noise and vibration

- 5.2.46. During the operational phase maintenance activities such as cable repair/ reburial, WTG/ OSP repairs and the use of jack-up vessels would have the potential to result in disturbance to the seabed which could give rise to increases in SSCs and sedimentation as well as noise and vibration impacts. The applicant explained that the effects of each of these impacts would be similar to those identified for the construction/ decommissioning phases; however those effects would be intermittent, highly localised and temporary,

with disturbance ceasing upon completion of maintenance at a given location.

5.2.47. The applicant therefore concluded that the impacts of temporary seabed disturbance, increased SSCs and noise and vibration on biotopes and habitats within the Zol during the operation and maintenance phase would range from 'negligible adverse' to 'minor adverse' and so none of these effects would be significant in EIA terms [[REP5a-017](#), paragraphs 9.299, 9.309 and 9.323].

5.2.48. In respect of impacts on benthic features within designated sites, the applicant concluded that the effects would range from 'no change' to 'negligible adverse' and so would not be significant in EIA terms [[REP5a-017](#), paragraphs 9.300, 9.314 and 9.328].

Colonisation of infrastructure from invasive non-native species

5.2.49. Finally, the applicant's assessment also set out that the artificial hard substrates associated with infrastructure such as WTG/ OSP foundations, scour protection and cable protection could also act as potential 'stepping stones' or vectors for INNS and facilitate the spread of such species. INNS could potentially lead to changes in the benthic communities as they can compete for space, prey on native species or introduce new pathogens.

5.2.50. As per the construction phase, the primary pathway for the introduction of INNS would be through the use of vessels and infrastructure that originates from outside the Irish Sea and Northeast Atlantic region. The applicant explained that during the maintenance phase it is anticipated that there would be 384 vessel return trips during a standard year, or up to 832 vessel return trips during a 'heavy maintenance' year. Measures to control the risk of INNS introduction would be adopted as per those for the construction/ decommissioning phase although the PEMP would not extend to cover activities/ operations during this phase. However, the applicant explained that monitoring of INNS colonisation would be undertaken and this commitment is set out within the IPMP [[REP6-017](#)] with further details for post-construction monitoring being secured by condition 16 of the dDML within schedule 6 of the dDCO [[REP6-002](#)]. Data from monitoring would allow the effects of potential colonisation to be gauged and further control measures put in place.

5.2.51. The applicant concluded that the potential for INNS introduction and/ or spread during the operation and maintenance phase would have a 'minor adverse' effect on benthic features within the Zol [[REP5a-017](#), paragraph 9.388] and the effect on benthic features in designated sites would be 'minor adverse' [[REP5a-017](#), paragraph 9.341]. The applicant concluded that none of these effects was therefore significant in EIA terms.

Cumulative effects

5.2.52. Table 9.21 of chapter 9 of the ES [[REP5a-017](#)] identified which of the project alone impacts the applicant considered had the potential for a cumulative

effect on receptors and so were taken forward as part of the 'combined assessment'. Table 9.22 [\[REP5a-017\]](#) sets out the various projects considered as part of the 'all projects assessment' which included developments that fall within a 30km distance of the application site. This distance encompasses the Zol for all relevant impacts, as well as incremental changes over the wider area.

- 5.2.53. For the 'combined assessment' the applicant concluded that given the limited interactions, localised nature and small scale of effects when considered in the context of the abundance of benthic habitats in the wider study area, the cumulative significance of these effects would be of no greater significance than those assessed for either the proposed development or the M&MTA (that is 'minor adverse' to 'negligible adverse'). The applicant concluded that the combined effect would therefore not be significant in EIA terms [\[REP5a-017\]](#), paragraph 9.405].
- 5.2.54. For the 'all projects assessment' the applicant acknowledged that construction, operation and maintenance (and decommissioning) activities associated with other developments/ projects within the study area could result in sediment disturbance and sediment plumes in addition to those associated with the proposed development. Where sediment plumes interact, there would be the potential for increases in SSCs and subsequent sedimentation which might be over and above what would be expected should the developments be undertaken in isolation.
- 5.2.55. Whilst the assessment acknowledged that there was the potential for overlap and interaction between some of the identified projects and the proposed development, the assessment concluded that given the spatial distribution of other plans and projects and the temporary and transient nature of increased SSCs and minimal sedimentation depths, no cumulative effects from increased SSCs and sedimentation beyond those identified for the project-alone were identified. The applicant concluded that the combined effects would therefore range between 'negligible' and 'minor adverse' and so would not be significant in EIA terms [\[REP5a-017\]](#), paragraphs 9.413 and 9.417.
- 5.2.56. In respect of the potential cumulative effect of changes in habitat type due to the installation and physical presence of infrastructure, having considered the estimates of seabed disturbance footprints associated with those projects and given the limited interactions and localised nature of any changes, when considered in the context of the abundance of benthic habitats in the wider study area, the assessment concluded that any cumulative effects would be no greater than those which have been assessed for the project alone ('minor adverse') [\[REP5a-017\]](#), paragraph 9.423]. The applicant concluded that the cumulative effects would therefore not be significant in EIA terms.

5.3. ISSUES CONSIDERED DURING THE EXAMINATION

THE CASE FOR THE INTERESTED PARTIES

Natural England

- 5.3.1. Natural England (NE) [\[RR-061\]](#) commented that an updated assessment of impacts on physical processes and benthic ecology should be provided to incorporate a realistic worst-case scenario of impacts associated with seabed preparation activities. It also commented that commitments to standard mitigation measures for benthic habitats, to the removal of infrastructure at decommissioning and to measures to reduce the introduction of plastics to the marine environment needed to be secured.
- 5.3.2. During the examination the applicant updated and made amendments to the ES and supporting documents in response to the issues raised by NE in its RR and subsequent written representations and submissions. By the close of the examination NE confirmed that all matters relating to the applicant's assessment of potential effects to identified receptors, the assessment conclusions and proposed mitigation measures and how they were to be secured had been agreed or, where not agreed, these would have no material effect on the conclusions of the assessment [\[REP6-052\]](#).
- 5.3.3. In its closing submission [\[REP6-047\]](#) NE noted that mitigation measures were secured in principle through the updates that had been made to the IPMP [\[REP6-017\]](#), oCMS [\[REP6-034\]](#) and oPEMP [\[REP5a-024\]](#) and that the benthic monitoring proposed by the applicant was fit for purpose. No other benthic monitoring was therefore required. However, NE reiterated its position that it considered an outline decommissioning plan should be provided pre-determination as this would provide the foundation for the final decommissioning plan that would confirm commitments to aid in returning the seabed to its pre-development state.

Marine Management Organisation

- 5.3.4. The Marine Management Organisation (MMO) [\[RR-047\]](#) stated it had no concerns in relation the applicant's assessment regarding benthic ecology. This position was confirmed again at the close of the examination in the SoCG [\[REP6-022\]](#) and its closing submission [\[REP6-046\]](#), paragraph 2.2.1].

Isle of Man Government (Territorial Sea Committee)

- 5.3.5. The Isle of Man Government (Territorial Sea Committee) (IoMTSC) [\[RR-031\]](#) noted amendments had been made to the ES prior to its submission.
- 5.3.6. The final SoCG [\[REP5a-037\]](#) confirmed the IoMTSC agreed the applicant had undertaken suitable consultation and assessments in respect of benthic ecology and that no significant effects had been identified relevant to the Isle of Man waters in relation to benthic ecology.

North West Wildlife Trusts

- 5.3.7. The North West Wildlife Trusts [\[RR-065\]](#) commented that whilst they noted the applicant had concluded that there would be no significant effects on benthic ecology they would expect monitoring to be carried out to determine whether the predictions in the ES were accurate. No further written representations or submissions were made during the examination.

ISSUES

- 5.3.8. Although there were a number of points raised in the examination in relation to benthic ecology, by the close of the examination most matters had either been agreed or, where they were not agreed, parties had agreed that the different positions did not have a material effect on the assessment conclusions. The issues which we therefore consider important and relevant and which we have reported on are as follows:

- Monitoring.
- Decommissioning.

Monitoring

- 5.3.9. During the examination NE submitted that there should be a standard requirement for pre and post-construction benthic monitoring to be carried out and requested that this be included in the dDCO. Although the baseline evidence confirms that there are no known Annex I biogenic or geogenic reef features within or near the proposed wind farm site, and that the habitats/ biotopes present would not be significantly affected by the proposals, the applicant has committed to carrying out pre- and post-construction surveys to allow for the identification and protection of reef habitat as well as to identify any morphological changes to the seabed. The applicant has also committed to carrying out monitoring for INNS. These commitments are reflected in the IPMP [\[REP6-017\]](#).
- 5.3.10. In response to the concerns raised by NE, the applicant updated and added additional wording to condition 9 of the dDML within schedule 6 of the dDCO [\[REP6-002\]](#), condition 9(1)(a)(v)] and the IPMP [\[REP6-017\]](#)). The IPMP confirms that the pre- and post-construction geophysical surveys (alongside drop down video as required) would be carried out and analysed to enable the identification of reef features and for any changes to the seabed features compared to the baseline data. This would therefore enable micro-siting to be carried out around any reef features (should these be identified) and ensure that these are protected during construction. The post construction survey would allow for a comparison to be made with the pre-construction state of the seabed and should this not identify the presence of reef features or any changes to the seabed morphology then the applicant considers further monitoring unnecessary and unjustified.

ExA's considerations in relation to monitoring

- 5.3.11. We note that the MMO defers to NE regarding the need for further benthic monitoring; however it is also overall content with the IPMP [\[REP6-046\]](#),

paragraph 5.9.7]. Given the lack of any evidence within the baseline data to suggest the presence of reef features, we are satisfied that the level of monitoring as provided for by the applicant within condition 9 of the dDML and the IPMP is a reasonable approach.

- 5.3.12. We also agree with the applicant that should the post construction surveys not identify any significant changes from that identified in the baseline characterisation data then no further benthic monitoring would be necessary. However, given the wording within the IPMP we are also satisfied that the drafting does allow for further monitoring to be agreed with the MMO should this be later identified as necessary [REP6-017, paragraph 36 and table 2.2]. Conditions 14, 15 and 16 of the dDML within schedule 6 of the dDCO [REP6-002] require further details relating of pre-construction, construction and post-construction surveys to be submitted for the approval of the MMO and these are required to accord with the IPMP. These therefore would provide an appropriate mechanism to secure any further monitoring and as a result, we do not consider any additional wording or drafting necessary.

Decommissioning

- 5.3.13. NE argued that an outline decommissioning programme should have been submitted and considered as part of the examination. The applicant committed to submitting a decommissioning programme following a notice from the SoS prior to any part of the proposed development commencing and this is secured by R10 of schedule 2 of the dDCO [REP6-002].

ExA's considerations in relation to decommissioning

- 5.3.14. Whilst the views of NE are noted, we are satisfied that the approach taken by the applicant is reasonable, complies with paragraphs 2.8.88 and 2.8.89 of NPS EN-3 and is consistent with that of previously made DCOs for offshore wind development. As such we do not consider it necessary to require an outline decommissioning plan to be submitted pre-determination of this application.

5.4. CONCLUSIONS

- 5.4.1. We are satisfied that the applicant has consulted appropriately with relevant statutory consultees and other stakeholders on the assessment methodologies, baseline data collection and taken into account views on the potential avoidance, mitigation and compensation options which should be undertaken.
- 5.4.2. We are satisfied that the applicant has undertaken suitable assessments to identify potential impacts and effects on benthic ecology receptors which we consider accords with the requirements of the EIA Regulations. This includes a consideration of the potential effects as identified within paragraph 2.8.126 of NPS EN-3 such as the loss of habitat and disturbance, impacts as a result of increased sediment loads, impacts and measures to reduce the level of EMF effects (NPS EN-5, paragraph 2.11.13) and impacts on protected sites as well the risks relating to INNS.

- 5.4.3. Based on the evidence before us we are satisfied that the proposed development would not have any direct or indirect significant effects on benthic features of any MCZ.
- 5.4.4. We are satisfied that, through the application and implementation of the embedded mitigation measures incorporated into the design of the development and/ or secured through requirements and conditions imposed on the dDCO, all residual effects on benthic ecology receptors would range from 'negligible adverse' to 'minor adverse' and be not significant in EIA terms.
- 5.4.5. In terms of cumulative effects, we agree with the applicant that the effects for all impacts assessed would be no greater than those which have been concluded for the project alone.
- 5.4.6. Taking all the relevant documentation and evidence into account, we have no reason to disagree with the applicant's conclusions regarding the residual effects of the proposed development on benthic ecology as a whole. We conclude that the effects of the proposed development on benthic ecology receptors should be afforded a little negative weight in the planning balance.
- 5.4.7. In our view, the proposed development would comply with paragraphs 5.4.17 and 5.6.13 of NPS EN-1, paragraph 2.8.101 of NPS EN-3 and Policy NW-MPA-1 of the NWMP as the applicant has carried out a detailed assessment of the impacts for all phases of the proposed development which we consider accords with the requirements relating to assessments, and would not have any direct or indirect effects on a MCZ. Additionally, as the dDCO makes provision for a decommissioning programme to be submitted for the approval of the SoS prior to any part of the proposed development commencing (secured by R10 of schedule 2 of the dDCO) we are satisfied that the proposals comply with paragraph 2.8.89 of NPS EN-3.

6. CIVIL AND MILITARY AVIATION AND RADAR

6.1. INTRODUCTION

6.1.1. This chapter of the report considers the effects of the proposed development on aviation and radar. Aviation and radar were identified as a principal issue in our Rule 6 letter [[PD-007](#), appendix C], including effects on civil and military aviation and radar interests, as well as search and rescue services. Matters relating to helicopter access to existing offshore infrastructure including oil and gas development are addressed in chapter 16 of this report.

6.1.2. In our consideration of aviation and radar, we have had regard to:

- the requirements of the following designated national planning policy statements (NPS)
 - Overarching National Policy Statement for Energy (NPS EN-1) as set out principally in section 5.5
 - National Policy Statement for Renewable Energy (NPS EN-3) in particular paragraphs 2.8.44 and 2.8.50 (which cross references back to the requirements within NPS EN-1)
 - National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) in particular sections 2.3 and 2.11 and notably paragraph 2.11.14
- the relevant policies of the North West Inshore and North West Offshore Marine Plan (NWMP) notably NW-CO-1 and NW-DEF-1
- any matters prescribed in relation to the development
- any other important and relevant matters
 - Marine Guidance Note 654 (MGN654): Safety of Navigation: Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response

6.2. THE APPLICATION

6.2.1. The applicant's assessment of effects on civil and military aviation and radar was principally set out in chapter 16 of the environmental statement (ES) [[REP3-024](#)] and was supported by various figures [[REP3-037](#)] and the following appendices:

- Appendix 16.1 which contains the Airspace Analysis and Radar Modelling report [[REP1-050](#)].
- Appendix 16.2 which contains the Blackpool Instrument Flight Procedure Safeguarding Report [[REP3-032](#)].
- Appendix 16.3 which contains a report on Other Instrument Flight Procedure Assessments [[APP-080](#)].

6.2.2. Other documents submitted during the examination which are also relevant include:

- Impact assessment of proposed Morecambe Bay windfarm against selected Instrument Flight Procedures [[REP3-073](#)].

- Very High Frequency (VHF), Ultra High Frequency (UHF) and Direct Frequency (DF) Technical Safeguarding Assessment [[REP6-037](#)].

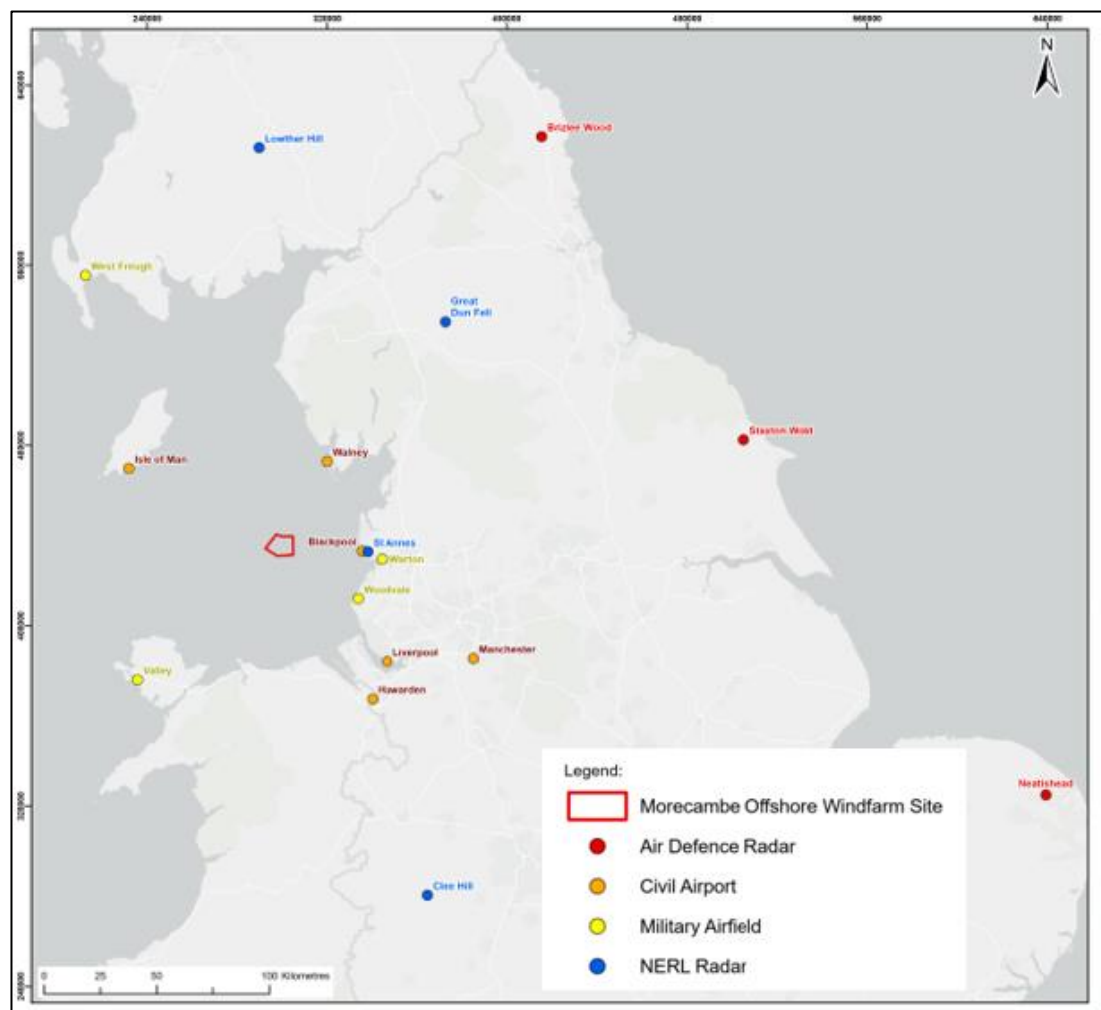
6.2.3. The assessment was informed by, and took into account, the findings and conclusions of other relevant topics and chapters of the ES. Those chapters included:

- Chapter 12 'Offshore Ornithology' [[REP6-009](#)].
- Chapter 14 'Shipping and Navigation' [[REP3-020](#)].
- Chapter 17 'Infrastructure and Other Users' [[REP1-038](#)] and supporting appendix 17.1 (Helicopter Access Study [[APP-081](#)]).
- Chapter 18 'Seascape, landscape and visual' [[REP3-026](#)].

BASELINE

6.2.4. The study area for civil and military aviation and radar is shown on Figure 8 [[REP3-037](#), figure 16.1] and encapsulates the application site and the air space between the site, the UK mainland and the Isle of Man.

Figure 8: Study area for civil and military aviation and radar (extract of figure 16.1 of [[REP3-037](#)])



6.2.5. An initial desktop assessment was undertaken to determine those aviation stakeholders that were likely to be affected by the proposed development

including all radar systems within operational range. Potentially affected aviation receptors identified included civil and military aerodromes and radar facilities, as well as offshore fixed-wing and helicopter flights, such as military low flying operations, safety and rescue operations and helicopter support for the oil and gas industry. The desktop assessment also resulted in all radar equipped airfields within 60 nautical miles (nm) of the application site being included in the study area as well as radar facilities that have a potential radar line of sight (RLoS) of wind turbine generators (WTGs) within the application site. Non-radar equipped airfields/ aerodromes that have the potential to be affected due to their proximity to the development were also included.

Primary and secondary radars

- 6.2.6. Computer radar modelling [[REP1-050](#)] was undertaken to predict if there was a likelihood of rotating WTG blades being detected by civil and military radar systems within the study area. This modelling was based on maximum blade tip heights as measured above mean sea level (AMSL) as opposed to above highest astronomical tide (HAT). The radar modelling assumed blade tip heights of 295 metres (m) AMSL for the smallest WTGs and 315m AMSL for the largest WTGs. Within the application site 0m HAT is the equivalent of 4.82m AMSL and therefore these heights incorporate an additional buffer of 0.18m above the maximum tip heights of 290m and 310m HAT that were used as the applicant's worst-case scenario parameters when carrying out its assessment [[REP3-024](#), table 16.2].
- 6.2.7. The radar modelling concluded that WTGs would likely be detected by the St Annes primary surveillance radar (PSR) and depending on their final size and position within the application site, the Great Dun Fell and Lowther Hill PSRs as well. WTGs could also potentially be detected by the PSRs at the Isle of Man Ronaldsway Airport and Hawarden Airport but would not be detected by the PSRs at Clee Hill, Liverpool or Manchester Airports.
- 6.2.8. RLoS modelling confirmed WTGs would be detected by the radar at Warton but not by the PSRs at RAF Valley or West Freugh and they would not be detected by any Air Defence Radars (ADRs) at Brizlee Wood, Staxton Wold or Neatishead.
- 6.2.9. No effects were identified on secondary surveillance radar (SSR) facilities given their reduced operational range and distance from the application site and no measurable effects were identified on other terrestrial based aviation communications, navigation and surveillance systems (CNS) [[REP3-024](#), section 16.5].

Airspace classification and flight rules

- 6.2.10. Aircraft operate under one of two flight rules: visual flight rules (VFR) or instrument flight rules (IFR). VFR apply when the weather satisfies visual meteorological conditions (VMC) and pilots can conduct their flights with visual reference to the natural horizon. When weather restricts visibility, this is known as instrument meteorological conditions (IMC), and aircraft must be

flown under IFR which requires pilots to conduct flights by reference solely to aircraft instrumentation.

- 6.2.11. The application site lies within uncontrolled Class G airspace that extends from sea level to approximately 19,500 feet (ft) AMSL and Low Flying Area (LFA) 17 that extends vertically from the surface to 2,000ft AMSL (as confirmed by the Defence Infrastructure Organisation (DIO) [[REP3-080](#), response to 1CAR14]). This airspace is predominantly used for low-level flight operations such as low flying military aircraft, safety and rescue operations, and helicopter support for the oil and gas industry. Flights within this airspace are largely undertaken under VFR which requires pilots to maintain minimum distances from notified obstacles.
- 6.2.12. Above the uncontrolled airspace is Class C controlled airspace which has an upper vertical limit of approximately 24,500ft AMSL. This airspace is available to both military and civil aircraft although it is mainly used to accommodate military aircraft flying under VFR. Further Class C airspace lies 5 kilometres (km) southwest of the application site which is known as the Holyhead Control Area (CTA). This has vertical limits between approximately 4,500ft AMSL and 19,500ft AMSL. This CTA encompasses multiple Air Traffic Services (ATS) routes connecting the Manchester, Birmingham and London regions with the Isle of Man and Northern Ireland.
- 6.2.13. Approximately 11km north of the application site is the Walney Transponder Mandatory Zone (TMZ) and approximately 25km south of the application site lies the Burbo Bank TMZ. It is mandatory for aircraft transiting a TMZ to carry and operate transponder equipment so that such aircraft can be detected and tracked by SSR systems. The Walney TMZ is established around the existing offshore wind farms of Walney, Walney Extension and West of Duddon Sands. The Burbo Bank TMZ is established around the Burbo Bank and Burbo Bank Extension offshore wind farms. The two TMZs are used to mitigate the impact of the WTGs associated with these developments on the Warton PSR.

MITIGATION

- 6.2.14. The applicant has incorporated what it describes as embedded mitigation features into the design of the proposed development to reduce the effects of impacts. These embedded mitigation measures include compliance with mandatory and regulatory requirements and compliance with guidelines affecting the aviation sector. They are summarised in table 16.3 of chapter 16 of the ES [[REP3-024](#)].
- 6.2.15. Additional mitigation consists of measures that have been identified to further reduce or eliminate predicted significant effects that exist after the application of embedded mitigation measures. A number of additional mitigations have been identified by the applicant which include:
- amendments to Instrument Flight Procedures (IFPs) for affected aerodromes/ airports

- co-operation and co-existence agreements with relevant oil and gas operators or protective provisions to maintain suitable buffers from infrastructure and to cover additional costs incurred (if required)
- implementation of technical mitigation solutions to impacted radar systems; examples of possible solutions include blanking (or not displaying) radar data, introduction of TMZs or use of alternative PSRs to provide infill coverage in the impacted wind farm site areas

6.2.16. The design parameters (which form the embedded mitigation measures relied upon by the applicant in carrying out its assessment) would be secured as commitments through requirement (R) 2 of schedule 2 of the dDCO and condition 1 of the draft Deemed Marine Licence (dDML) in schedule 6 of the dDCO. R3 to R9 of schedule 2 of the dDCO [\[REP6-022\]](#) secure the commitments and additional mitigation measures identified to address impacts on affected aerodrome/ airports, radar systems and details of lighting to be installed on WTGs.

ASSESSMENT OF EFFECTS

6.2.17. The realistic worst-case scenarios used in undertaking the assessment for each phase of the proposed development are set out in table 16.2 of chapter 16 of the ES [\[REP3-024\]](#).

6.2.18. The potential impacts identified and assessed by the applicant for each phase of the development differ slightly, but all relate to issues arising from the potential physical obstruction of aircraft, increased air traffic in the area related to wind farm activities and interference on radars caused by rotating WTG blades.

6.2.19. The potential impacts identified and assessed can therefore be summarised as follows:

- impacts on civil and military radar systems due to WTGs and tall vessels/ cranes associated with construction, operation and maintenance, and decommissioning activities
- creation/ removal of an aviation obstacle environment
- increased air traffic in the area related to wind farm construction, operation and maintenance, and decommissioning activities

6.2.20. A summary of the potential impacts and the conclusions reached in terms of the effects for each of the identified impacts is provided in table 16.12 of chapter 16 of the ES [\[REP3-024\]](#).

Construction and decommissioning effects

Impacts on civil and military radar systems

6.2.21. WTGs and other tall structures have the potential to impact on radar and surveillance systems as they can lead to interference which affects a radar operator's ability to differentiate between obstacles and aircraft.

6.2.22. The applicant explained that until such time that WTGs were operational radar systems would not detect them. Additionally, tall construction vessels

and cranes would not be moving fast enough to generate any interference or clutter on their displays. As a result, the applicant concluded the effect of WTGs and tall vessels/ cranes on radar systems during the construction phase would be that of 'no change' when compared with the baseline. Those effects would therefore not be significant in environmental impact assessment (EIA) terms [REP3-024, paragraphs 16.120].

- 6.2.23. During the decommissioning phase, the applicant explained that WTGs would have ceased operating and all above sea level infrastructure within the application site would be gradually removed. The cessation of rotating WTG blades would remove any potential interference or clutter to radar display systems and once decommissioned the airspace within the application site would be returned to its pre-development condition. Consequently, the applicant concluded that the effect of WTGs and tall vessels/ cranes on radar systems during this phase would also be that of 'no change' when compared with the baseline [REP3-024, paragraphs 16.187].

Creation of an aviation obstacle

- 6.2.24. The construction and installation of infrastructure above sea level would create potential physical obstructions to aircraft utilising the airspace in the vicinity of the application site. The applicant explained that a series of measures would be implemented and adopted to ensure pilots were aware of any additional infrastructure or obstacles within the application site. These embedded mitigation measures [REP3-024, table 16.3] would include issuing notifications, charting, marking and lighting infrastructure. Pilots would also be expected to comply with aviation regulatory requirements and use the principle of 'see and avoid' any obstacles when transiting the application site.
- 6.2.25. The applicant concluded that even with the embedded mitigation measures in place the residual effects of this impact would be 'moderate significant' and so significant in EIA terms [REP3-024, paragraph 16.140].
- 6.2.26. To reduce these effects the applicant stated that additional mitigation measures would be adopted to ensure aviation stakeholders were aware of potential obstacles. Such measures include providing details of the final layout and blade tip heights of WTGs within the application site and the prior approval of mitigation measures to address potential impacts such as changes to IFPs (including minimum sector altitudes (MSAs)) and the implementation of technical mitigation solutions to address effects on VHF, UHF and DF radio communication systems and radar. As discussed in chapter 11, the applicant also proposed buffer zones around existing oil and gas infrastructure which would prevent the installation of WTGs within those zones and therefore ensure obstacle free access could be maintained. These additional mitigation measures would be secured through R5, R6, R7 and R9 within schedule 2 of the dDCO and by protective provisions contained within schedule 3 [REP6-002].
- 6.2.27. With the embedded and additional mitigation in place, the applicant concluded that the residual effects would be reduced to 'not significant' in EIA terms [REP3-024, paragraph 16.142].

Increased air traffic in the area

- 6.2.28. The potential use of helicopters to transfer people and/ or equipment during the construction/ decommissioning phases would increase air traffic and potentially the risk of aircraft collision. The applicant explained that within uncontrolled airspace all pilots and aircrew would be expected to operate in accordance with regulatory requirements and national procedures. Pilots transiting uncontrolled airspace could also request the support of air traffic services and so the applicant asserted that adherence to these would reduce the risk of collision between aircraft associated with the proposed development and that associated with other activities.
- 6.2.29. As the above were considered to be embedded mitigation [[REP3-024](#), table 16.3], the applicant concluded that the effects of increased air traffic during these phases would be 'not significant' in EIA terms [[REP3-024](#), paragraphs 16.147 and 16.198].

Operation and maintenance effects

Impacts on civil and military radar systems

- 6.2.30. During the operation and maintenance phase, rotating WTG blades have the potential to generate interference and clutter upon radar displays and affect the provision of safe and effective air traffic services.
- 6.2.31. Having carried out computer modelling the applicant confirmed that the radars at Great Dun Fell, Lowther Hill and St Annes would be impacted by operational WTGs and so affect the operation of air traffic services and the safety of aircraft using those facilities. Therefore, the applicant concluded that the effects of the development on these specific radar systems would be 'major significant' and so significant in EIA terms [[REP3-024](#), paragraph 16.159].
- 6.2.32. To reduce those effects additional mitigation would therefore be required. The applicant explained that NATS (En Route) Plc (NATS) had confirmed that a mitigation solution had been identified and the detail of the final mitigation solution would be agreed post-consent. In the final version of the applicant's dDCO this would be secured through R4 within schedule 2 of the dDCO [[REP6-002](#)].
- 6.2.33. With the radar mitigation solution in place, the applicant concluded that the residual effect of the proposed development on the radars based at Great Dun Fell, Lowther Hill and St Annes would be reduced to 'not significant' in EIA terms [[REP3-024](#), paragraph 16.164].
- 6.2.34. The applicant explained that whilst it would be possible for WTGs (depending on their final position and height) to be detected by the radar at Hawarden airport, the application site was significantly beyond Hawarden's area of control. Additionally, during the pre-application stages, the airport operator had confirmed the development would have no impact on its operations [[REP3-024](#), paragraph 16.158]. Similarly, during the pre-application stage the Ministry of Defence (MoD), which is the owner of Warton aerodrome, had

confirmed that there would be no operational impact on the radar at Warton aerodrome [REP3-024, paragraph 16.148].

- 6.2.35. For the Isle of Man Ronaldsway airport, the applicant explained that whilst the proposed development and WTGs would be detectable, the airport operator had confirmed that it had no concerns regarding the project alone impacts of the proposed development given its distance from the airport. However, given the number of offshore wind projects being proposed within the Irish sea the airport did have concerns about the potential cumulative effect these could have on the processing capacity of the radar [REP3-040, paragraph 16.157].
- 6.2.36. Given the above, the applicant concluded that the effects of operating WTGs and the presence of tall vessels/ cranes on the radar systems at Hawarden airport, the Isle of Man Ronaldsway airport and Warton aerodrome would be 'not significant' in EIA terms [REP3-024, paragraph 16.160]. As a result, no additional mitigation was initially proposed.
- 6.2.37. However, as discussed later in this chapter, during the examination stage concerns about the impact of the development on the radar at Warton aerodrome and the cumulative effects of the development on the radar at the Isle of Man Ronaldsway airport were subsequently raised by IPs. Consequently, and in response to those concerns, additional mitigation measures were later identified and proposed by the applicant to address those concerns, and these would be secured through R8 and R9 within schedule 2 of the applicant's final dDCO [REP6-002]. Notwithstanding these additional measures, the applicant's original conclusions as set out in the ES and cited in paragraph 6.2.36 above remained unchanged.

Creation of an aviation obstacle environment

- 6.2.38. Like the construction/ decommissioning phase, the applicant concluded that the presence of physical infrastructure and tall vessels/ structures associated with maintenance activities would create an aviation obstacle within the airspace above the application site. These impacts would exist for the life of the proposed development and therefore without additional mitigation the applicant concluded that the effect would be the same as that concluded for the construction phase - this being 'moderate significant' and so significant in EIA terms [REP3-024, paragraph 16.176].
- 6.2.39. To reduce these effects, the additional mitigation solutions previously identified by the applicant to reduce the construction effects would be implemented (as set out in paragraph 6.2.26). With the additional mitigation measures in place the applicant concluded that the residual effects would be reduced to 'not significant' and so would not be significant in EIA terms [REP3-024, paragraph 16.179].

Increased air traffic in the area

- 6.2.40. Although the applicant did not anticipate helicopters being used as the primary mode of access for offshore operations and maintenance, it

recognised that there was still the potential for increases in air traffic and therefore the risk of aircraft collision in the airspace around the application site. The applicant explained that the number of movements during this phase would be low and conducted under daytime VMC. Pilots would therefore follow the principle of ‘see and avoid’ and be expected to comply with regulatory requirements and national procedures. The applicant considered such measures to be embedded mitigation and therefore concluded that the effects of this impact would be the same as those identified for the construction/ decommissioning phases – that being ‘not significant’ and so would not be significant in EIA terms [REP3-024, paragraphs 16.183].

Cumulative effects

- 6.2.41. Table 16.8 of chapter 16 of the ES [REP3-024] identified which project alone impacts the applicant considered had the potential for a cumulative effect and so were taken forward in the ‘combined assessment’. For the construction phase, the applicant considered that there was a potential for cumulative effects because of the creation of physical obstacles within airspace and increased risk of air collision as a result of increased air traffic. For the decommissioning phase the only impact the applicant considered had the potential for cumulative effects was the increased risk of air collision from increased air traffic.
- 6.2.42. Table 16.9 [REP3-024] sets out the various plans and projects considered for the ‘all projects assessment’. This included plans and projects within 100km of the application site which the applicant considered could have overlapping impacts on the receptors impacted by the proposed development. The applicant considered 100km to be the maximum range at which radar cumulative effects could occur. As existing operational wind farms had been considered as part of the baseline, the additional projects identified and included in the assessment were:
- Awel y Môr (AyM) Offshore Wind Farm
 - Mona Offshore Wind Project (MonOWP)
 - Morgan and Morecambe Offshore Wind Farms: Transmission Assets (M&MTA)
 - Morgan Offshore Wind Generation Wind Project Generation Assets (MOWP)
- 6.2.43. For the ‘combined assessment’ the applicant concluded that the cumulative significance of effects would be of no greater significance than those assessed for either the proposed development on its own or the M&MTA. The combined residual effects were therefore assessed to be ‘not significant’ in EIA terms [REP3-024, table 16.10].
- 6.2.44. For the ‘all projects assessment’ the applicant considered that there was a potential for cumulative effects from WTG impacts on PSRs (during the operation and maintenance phase), aviation impacts from the creation of an offshore obstacle environment (during the construction and operation and

maintenance phases) and impacts from increased air traffic activity during all phases.

- 6.2.45. The applicant took the view that all existing projects would have suitable radar and obstacle mitigations already in place and that all future offshore wind farms would also be required to have similar mitigations in place before becoming operational. Furthermore, although there would be a greater potential risk of increased air traffic and mid-air collision between aircraft engaged in operations associated with the different projects and plans, such traffic would be managed by air traffic services and pilots required to operate in accordance with aviation regulatory requirements and procedures. The applicant therefore concluded that, while there are a number of potential additive effects, for all these impacts the cumulative effect of all plans and projects was assessed as being 'not significant' in EIA terms [[REP1-036](#), table 16.12].

6.3. ISSUES CONSIDERED DURING THE EXAMINATION

THE CASE FOR THE INTERESTED PARTIES

Civil Aviation Authority

- 6.3.1. The Civil Aviation Authority (CAA) did not submit a RR and so was not an IP in the examination. However, we did write to the CAA [[OD-012](#)] to make it aware of the examination timetable and invited it to respond to written questions [[PD-011](#), 1CAR15] [[PD-018](#), 3DCO1] and attend issue specific hearing 3 (ISH3) which focused on matters relating to other sea users and aviation [[EV5-001](#) to [EV5-007](#)].
- 6.3.2. The CAA provided responses to our written questions [[REP3-075](#) and [REP5a-064](#)] and attended ISH3. We have had regard to those responses in our consideration of the application.

Defence Infrastructure Organisation

- 6.3.3. The Defence Infrastructure Organisation (DIO) represents the MoD as a consultee in UK planning and energy consenting systems. The DIO [[RR-021](#)] raised concerns that the proposed development would create a physical obstruction to low flying aircraft and impact on the operation and capability of air traffic control radar systems at Warton aerodrome from which BAE Systems (Operations) Ltd operates. The DIO commented that mitigation should be identified and secured to address the impacts on the radar system. It commented that its concerns regarding physical obstruction could be addressed by the addition of conditions/ requirements to secure the approval and implementation of an aviation lighting scheme and that sufficient data was provided to ensure that structures would be accurately charted to allow deconfliction.
- 6.3.4. The DIO provided responses and written submissions during the examination including to our written questions [[REP3-080](#), [REP5-074](#) and [REP5a-065](#)]. A SoCG between the applicant and the DIO was also entered into which focused solely on matters relating to the DIO's wider interests. This SoCG

was updated throughout the course of the examination with the final SoCG [\[REP5a-039\]](#) confirming that all matters had been agreed.

- 6.3.5. The DIO deferred issues and matters relating to Warton aerodrome to BAE Systems (Operations) Ltd given its operational interest in the site. A separate and joint SoCG between the applicant, DIO and BAE Systems (Operations) Ltd was therefore entered into for matters relating to Warton aerodrome. Within that SoCG [\[REP6-024, DIO16\]](#) it is stated that as matters relating to the radar system had not been fully agreed by the close of the examination the DIO and MoD maintained an objection to the proposed development.

NATS (En Route) Plc

- 6.3.6. NATS [\[RR-060\]](#) raised concerns about the impact of the proposed development on the air traffic radar systems at St Lowther Hill, St Annes and Great Dun Fell.
- 6.3.7. In response [\[PD1-011, row RR-060-12\]](#) the applicant confirmed that it had held discussions with NATS regarding mitigation options and that a solution had been identified. A statement of common ground (SoCG) was entered into and updated during the examination.
- 6.3.8. At the close of the examination the SoCG [\[REP5a-035\]](#) confirmed that all matters had been agreed. This included agreement that a realistic radar mitigation solution had been identified and would be achievable. The radar mitigation solution would be secured through R4 of the applicant's dDCO [\[REP6-002\]](#) and the drafting of that requirement was agreed.

BAE Systems (Operations) Limited

- 6.3.9. BAE Systems (Operations) Limited (BAE Ops) [\[RR-006\]](#) initially stated that it had been unable to find any evidence of meaningful pre-application engagement having been carried out by the applicant with BAE Ops and that it was concerned WTGs could interfere with operations at Warton aerodrome, in particular the radar tracking system used for aircraft flying at lower altitudes.
- 6.3.10. In response [\[PD1-011, row RR-006-02\]](#) the applicant confirmed that it had engaged with the MoD during the pre-application stage and that through those discussions the MoD had confirmed that there would be no operational impact on the radar at Warton aerodrome and so no further assessment had been considered necessary. However, following receipt of the RRs from the MoD and BAE Ops, the applicant would continue to engage with them through the examination to identify potential mitigation solutions. A joint SoCG was subsequently entered into and progressed with BAE Ops and the DIO in relation to issues and matters relating to Warton aerodrome and this was updated throughout the examination.
- 6.3.11. Closing submissions/ position statements (produced jointly with BAE Marine Systems Ltd and Blackpool airport) were submitted [\[REP6-056\]](#) and [\[REP6-069\]](#) along with the final SoCG between the applicant and BAE Ops.

The final SoCG confirmed all matters had been agreed except in relation to the proposed mitigation solutions for the radar system and impacts to VHF, UHF, DF radio communications [[REP6-024](#), DIO13, DIO16, DIO17 and DIO18].

6.3.12. BAE Ops' final position on these matters can be summarised as follows:

- **Radar mitigation solution** - it was agreed a radar mitigation solution had been identified; however, BAE Ops need to carry out an operational assessment to confirm the proposed solution is acceptable. When that has been completed BAE Ops has stated it would be in a position to advise the DIO who would then be able to confirm removal of the MoD's objection. However, as the timescales for conducting the operational assessment and implementing the mitigation solution are unknown, this item was marked as still 'In discussion' at the close of the examination.
- **Radar mitigation requirement** - the radar mitigation solution would be secured through R8 of the applicant's dDCO [[REP6-002](#)] and the drafting of that requirement was agreed except for one drafting point. This relates to a request by BAE Ops that an additional limb be added which would require the WTGs to cease operating in the event of a future (post-implementation) failure of the approved radar mitigation scheme. The applicant disagreed this was necessary and so this matter was identified as still 'In discussion' at the close of the examination.
- **VHF, UHF and DF communication** – a partial mitigation solution had been identified to reduce the effects of the proposed development on VHF, UHF and DF radio communications at Warton aerodrome. This would be secured through R7 of the applicant's dDCO [[REP6-002](#)]. Although the wording of that requirement had been agreed between the parties, this matter was identified as still 'In discussion' at the close of the examination.

BAE Systems Marine Limited

6.3.13. BAE Systems Marine Limited (BAE) [[RR-007](#)] initially stated that, like BAE Ops, it had been unable to find any evidence of meaningful pre-application engagement having been carried out by the applicant with BAE. It was also concerned WTGs could interfere with the current operations at Walney aerodrome and its future expansion proposals.

6.3.14. In response [[PD1-011](#), row RR-007-02] the applicant confirmed that it had engaged with the Senior Air Traffic Control Officer (SATCO) at Walney aerodrome regarding potential impacts and full details of the relevant consultation held were set out in the Consultation Report [[APP-015](#)]. The applicant confirmed it would continue to engage with BAE through the examination to identify potential mitigation solutions. A SoCG was entered into and updated throughout the examination.

6.3.15. Closing submissions/ position statements (produced jointly with BAE Ops and Blackpool Airport) were submitted [[REP6-056](#) and [REP6-069](#)] along with the final SoCG. The final SoCG confirmed all matters had been agreed except in relation to the proposed mitigation to address impacts on VHF

radio communications at Walney aerodrome [[REP6-027](#), BAE16 and BAE17]. On this matter BAE understood a partial mitigation solution had been identified and that this mitigation would be secured through R6 of the applicant's dDCO [[REP6-002](#)]. Although the wording of that requirement was also agreed between the parties, discussions were to continue post examination and therefore this matter was identified as 'In discussion' at the close of the examination.

Blackpool Airport

- 6.3.16. Blackpool Airport (BLK) [[RR-013](#)] was concerned that the proposed development could impact on the operation and air traffic services offered by the airport. More specifically these concerns related to effects on its IFPs, MSAs and VHF and DF communication systems.
- 6.3.17. A SoCG was entered into with the applicant, and this was updated during the examination.
- 6.3.18. Closing submissions/ position statements (produced jointly with BAE Ops and BAE) were submitted [[REP6-056](#) and [REP6-069](#)] along with the final SoCG. The final SoCG confirmed all matters had been agreed except in relation to the applicant's baseline characterisation and description of the uncontrolled airspace around the application site and in relation to the proposed mitigation solution to address impacts to VHF and DF radio communications [[REP6-025](#), BA4 and BA16].
- 6.3.19. BLKs final position on these matters can be summarised as follows:
- **Baseline characterisation of airspace** – BLK disagreed with the applicant's description of the uncontrolled airspace in which it described flights as being conducted under VFR. BLK considered this inaccurate as flights within this airspace can also be conducted under IFR and the airport provides air traffic services to support such flights in low visibility. Whilst this matter was therefore not agreed, it was confirmed that this area of disagreement had no material impact.
 - **VHF and DF communication** – a partial mitigation solution had been identified to reduce the effects of the proposed development on VHF and DF radio communications at the airport. This would be secured through R5 of the applicant's dDCO [[REP6-002](#)] and, although the wording of that requirement had been agreed between the parties, this matter was identified as still 'In discussion' at the close of the examination.

Burbo Extension Limited and Walney Extension Limited

- 6.3.20. RRs were made by Burbo Extension Limited [[RR-014](#)] and Walney Extension Limited [[RR-089](#)] (part of the Ørsted IPs) who own the Burbo Bank Extension Wind Farm and Walney Extension Wind Farms. These two IPs raised concerns that the proposed development would impact upon the radar mitigation solution that they were developing and implementing to mitigate the impacts of their wind farms on Warton aerodrome. These parties therefore wanted assurances that the proposed development would not impact on the effectiveness or cost of their radar solution [[REP1-112](#)].

- 6.3.21. A combined SoCG between the applicant and the Ørsted IPs was submitted at D6 [REP6-028]. In this the Ørsted IPs maintain that assurances were required that the cost and performance of their radar mitigation solution would not be adversely affected by the proposed development and, if the applicant wanted to make use of their mitigation solution, that it would contribute to the purchase, installation and maintenance costs of that solution. The applicant commented that a radar mitigation solution for the proposed development had been agreed with the DIO and BAE Ops for Warton aerodrome and that any arrangements between the Ørsted IPs and the DIO and BAE Ops regarding its radar mitigation solution is a matter between those parties. The SoCG recorded these discussions as continuing at the close of the examination.

Isle of Man Ronaldsway Airport / Isle of Man Territorial Sea Committee

- 6.3.22. The Isle of Man Ronaldsway airport did not submit a RR and so was not an IP in the examination. However, the RR of the Isle of Man Government (Territorial Sea Committee) (IoMTSC) [RR-031] did request continued engagement with the applicant in relation to potential impacts on air travel and any mitigation.
- 6.3.23. We wrote to the airport [OD-013] to make it aware of the examination timetable and asked for clarification on whether the IoMTSC would be representing the views of the airport at the examination [PD-011, 1CAR15]. The IoMTSC responded [REP3-106] confirming that, where relevant, the airport would provide input as part of the IoMTSCs written representations although on technical matters the airport would have direct contact with the applicant. Updates on those discussions would be provided via the SoCG between the applicant and the IoMTSC.
- 6.3.24. The final SoCG [REP5a-037, TSC22 to TSC25] confirmed that all matters in relation to civil and military aviation and radar had been agreed. This included confirmation that an initial review of potential mitigation requirements to counter the predicted cumulative impact of the proposed wind farms in the Irish Sea had been undertaken and a mitigation solution identified. Discussions would continue post examination to agree implementation timelines, but R9 of the applicant's dDCO [REP6-002] would secure this mitigation, and the wording of that requirement had been agreed between the parties.

ISSUES

- 6.3.25. By the close of the examination the applicant had largely agreed all matters with interested parties relating to the civil and military aviation and radar. The key issues and matters that we consider important and relevant and/ or which were not resolved by the close of the examination and which we have reported on are as follows:
- mitigation for the effects on the radar at Warton aerodrome
 - mitigation for effects on VHF, UHF and DF radio communication

Mitigation for the effects on the radar at Warton aerodrome

- 6.3.26. R8 of the applicant's dDCO [REP6-002] secures the proposed radar mitigation solution and requires the solution to be approved prior to the WTGs becoming fully operational. The DIO and BAE Ops agree that a radar mitigation solution is technically capable of mitigating the effects identified. However, BAE Ops has yet to carry out an operational assessment to confirm this system is acceptable and, until this has been carried out and confirmed, the DIO and MoD maintain a formal objection to the proposed development [REP6-024, DIO16].
- 6.3.27. BAE Ops has confirmed the wording of R8 is largely agreed but considers an additional clause should be included which would require the proposed development to cease operation should the approved radar mitigation scheme fail in future. This additional clause first appeared in the final SoCG submitted at deadline (D) 6 [REP6-024, DIO18] and so had not previously been raised during the examination.
- 6.3.28. Although BAE Ops has yet to carry out its operational assessment, the drafting of R8(3) of the applicant's dDCO [REP6-002] prevents the WTGs from becoming fully operational until such an assessment has been completed and in situ testing carried out. Additionally, R8(5)(b) requires the undertaker to *"thereafter maintain, repair and replace, including without limitation resolving any failure (howsoever caused) of, the approved radar mitigation scheme for so long as any of the wind turbine generators erected as part of the authorised development are operational and provided that the PSR remains an operational requirement of the Ministry of Defence or operator (or both)."*

ExA's considerations relating to the mitigation of effects on the radar at Warton aerodrome

- 6.3.29. We note the MoD/ DIO's outstanding objection. However, we consider that when a scheme is agreed then this would fall away. Given the wording of R8 we are content that the development could not proceed until the proposed radar solution has been demonstrated and agreed to be effective.
- 6.3.30. While the applicant's proposed drafting does not extend as far as requiring the development to cease operating should the approved radar solution fail in the future, it does place an obligation on the undertaker to resolve any such failure (howsoever caused) at its own cost, for so long as the WTGs are operational and the radar is required by the MoD. We concur with the applicant that the additional clause sought by BAE Ops would not be reasonable [REP6-040, table 7.1] as the radar is not owned/ operated by the applicant and so it would be outside their control to resolve any such failure. To require the proposed development to cease for a potentially indeterminate period does not in our mind strike a reasonable balance between ensuring the renewable energy benefits of proposed development could continue to be realised whilst ensuring the aims and interests of BAE Ops are protected. The additional clause would therefore be contrary to the objectives and spirit

of paragraphs 5.5.4 and 5.5.53 of NPS EN-1 and in our view is unnecessary, imprecise and unreasonable.

- 6.3.31. Overall, whilst we acknowledge the proposed development has the potential to impact the radar system at Warton aerodrome, we are content that a realistic and achievable radar mitigation solution is available and that R8 of the dDCO [\[REP6-002\]](#) is an appropriate mechanism to secure this. We are also content that given the provisions of R8 the SoS can be satisfied that sufficient safeguards would be in place to ensure the development could not proceed until the proposed radar solution has been demonstrated and agreed to be effective and would thereafter be maintained. The SoS can therefore be satisfied that the impacts of the proposed development do not present a risk to national security and physical safety and so complies with paragraphs 5.5.58 and 5.5.60 of NPS EN-1.

VHF, UHF and DF radio communications

- 6.3.32. The concern regarding potential interference to VHF, UHF and DF radio communication systems was something that emerged during the examination and had not previously been identified during the pre-application stage or in any RRs of the interested aviation stakeholders.
- 6.3.33. The concerns were first raised by BLK in the draft SoCG submitted at D1 [\[REP1-070\]](#), BA14].
- 6.3.34. In our written questions [\[PD-011\]](#), 1CAR18] we sought clarification from BLK and the other airport/ aerodrome operators as to whether they had similar concerns, and an update from the applicant on how it proposed to respond/ address these concerns. The applicant confirmed that to address the concerns raised it had commissioned assessments to be undertaken in relation to BLK, Walney and Warton aerodromes and understood that the Isle of Man Ronaldsway airport had commissioned its own assessment [\[REP3-068\]](#), 1CAR8]. We explored these concerns further at ISH3 [\[EV5-001\]](#) to [\[EV5-007\]](#) and sought updates on the assessments and any possible mitigation as part of our second and third round of written questions [\[PD-015\]](#), ExQ2CAR2 and [\[PD-018\]](#), ExQ3CAR1]. The applicant's VHF, UHF and DF assessment was shared with the affected IPs prior to being submitted into the examination at D5a [\[REP5a-063\]](#) and was subsequently updated in response to comments received with the final version being submitted at D6 [\[REP6-037\]](#).
- 6.3.35. Although the concerns about potential interference to VHF, UHF, and DF communications were raised post submission of the application, the applicant has engaged positively with the interested stakeholders and sought to respond and resolve those concerns during the examination. The applicant's assessment concluded that the effect of the proposed development would mean that, while radio communication could take place, the readability of calls received and transmitted by aircraft could be reduced. However, these effects would only occur when aircraft were directly above the application site and would decrease with distance, both vertically and horizontally, as aircraft fly by. The applicant therefore considered the effects

of the development would be highly localised and confined to the immediate vicinity of the proposed development.

- 6.3.36. To mitigate these effects the applicant has identified and discussed a technical solution with the affected aerodrome/ airport operators. The proposed solution involves providing an alternative method to monitor and track aircraft passing over and around the proposed development. This would be achieved by providing a SSR feed to a flight information display system (FID) so that staff at the affected airports/ aerodromes can monitor and check the progress of aircraft should radio communication be affected or lost [REP6-056]. This proposed solution has been discussed with the affected airport/ aerodrome operators and whilst the SoCGs with those IPs confirm discussions were ongoing at the close of the examination, there was general agreement the mitigation solution identified was achievable and that the provisions within the drafting of R5, R6, R7 and R9 provide a mechanism to secure this mitigation as appropriate [REP5a-037, TSC22 to TSC29; REP6-024, DIO13; REP6-025, BA16 and BA17; REP6-027, BAE16 to BAE18].

ExA's considerations in relation to VHF, UHF and DF radio communications

- 6.3.37. We are content a realistic and achievable mitigation solution to address the potential effects on VHF, UHF and DF radio communications is available. We are also content that the provisions of R5, R6, R7 and R9 ensure that the SoS can be satisfied sufficient safeguards would be in place to ensure the development could not proceed until that solution has been agreed and would be implemented before the authorised development became operational.
- 6.3.38. The SoS can therefore be satisfied that the impacts of the proposed development do not present a risk to national security and physical safety and so it complies with paragraphs 5.5.58 and 5.5.60 of NPS EN-1.

6.4. CONCLUSIONS

- 6.4.1. We are satisfied that the applicant has carried out an adequate assessment of the proposed development and its potential effects on the performance of civil or military aviation communications, navigation and surveillance, meteorological radars and/ or other defence assets. The applicant has also carried out suitable consultation with relevant stakeholders at the pre-application stage and engaged and worked collaboratively with aviation stakeholders and aerodrome operators during the examination to allow for co-existence and ensure that neither is unduly compromised. We are content that the proposed development would therefore comply with MGN654 and paragraphs 5.5.5, 5.5.37 to 5.5.42 and 5.5.53 of NPS EN-1 and paragraphs 2.8.48 and 2.8.50 of NPS EN-3.
- 6.4.2. We are satisfied the proposed development has been designed, where possible, to minimise adverse impacts on the operation and safety of aerodromes. Where effects have been identified, suitable mitigation solutions have been identified to address these which include changes to operational

procedures and radar mitigation solutions that are realistically achievable and deliverable within the time limit for implementation of the DCO. We are therefore content that the proposed development would comply with the requirements of paragraphs 5.5.43 and 5.5.49 to 5.5.60 of NPS EN-1 and paragraph 2.11.14 of NPS EN-5.

- 6.4.3. We concur with the applicant's conclusions that, during the construction and decommissioning phases, most effects would result in 'no change' or be 'not significant' when considered against the baseline environment and therefore not significant in EIA terms. We also agree that whilst the effects arising from the creation of an aviation obstacle would be 'moderate significant' and so significant in EIA terms, we are satisfied that through the implementation of additional mitigation, the residual effect would be reduced to 'not significant' and therefore not considered significant in EIA terms.
- 6.4.4. We also concur with the applicant's conclusions that, during the operation and maintenance phase, the presence of infrastructure and the operation of WTGs during the life of the proposed development would result in 'major significant' and 'moderate significant' effects which are significant in EIA terms. However, we also agree that, through the implementation of additional mitigation, the residual effects would be reduced to 'not significant' and so would not be significant in EIA terms, and for all other impacts we agree the effects would be 'not significant' when considered against the baseline environment and so not significant in EIA terms.
- 6.4.5. In terms of cumulative effects, we concur that the effects for all impacts assessed would be no greater than those which have been concluded for the project alone. Therefore, the residual effects would not be significant in EIA terms.
- 6.4.6. We therefore conclude that the effects of the proposed development on civil and military aviation and radar as a whole should be afforded a little negative weight in the planning balance.
- 6.4.7. In our view, the applicant's proposals and the proposed development would:
- comply with the requirements of MGN654 and paragraph 5.5.5 of NPS EN-1 and paragraph 2.8.48 of NPS EN-3 as we are satisfied that the applicant has engaged and worked collaboratively with aviation stakeholders and aerodrome operators to allow for co-existence and ensure that neither is unduly compromised
 - meet the requirements of paragraphs 5.5.37 to 5.5.42 and 5.5.53 of NPS EN-1 and paragraph 2.8.50 of NPS EN-3 as the applicant has carried out an adequate assessment of the proposed development and its potential effects on the performance of civil or military aviation communications, navigation and surveillance, meteorological radars and/or other defence assets. The applicant has also carried out suitable consultation with relevant stakeholders at the pre-application stage and during the examination including with the MoD, Met Office, CAA, NATS and affected aerodrome operators

- comply with paragraph 5.5.43 of NPS EN-1 as the proposals include appropriate mitigation measures as an integral part of the proposed development and where further details are required suitable requirements have been proposed to secure these
- meet the requirements of paragraphs 5.5.49 and 5.5.50 of NPS EN-1 and paragraph 2.11.14 of NPS EN-5 as we are satisfied the proposed development has been designed, where possible, to minimise adverse impacts on the operation and safety of aerodromes. Where effects have been identified, such as those to the NATS radar systems at Lowther Hill, St Annes and Great Dun Fell, a suitable mitigation solution has been identified that would be realistically achievable and is secured by R4 of the applicant's proposed dDCO [\[REP6-002\]](#)
- meet the requirements of paragraph 5.5.51 of NPS EN-1 as we are content that the changes required to amend the IFPs and MSAs which relate to the operational procedures at Walney and Warton Aerodromes and Blackpool Airport are necessary, acceptable and reasonable. We are also satisfied that R5, R6 and R7 proposed on the applicant's dDCO [\[REP6-002\]](#) are an appropriate mechanism to secure these
- meet the requirements of paragraph 5.5.54 of NPS EN-1. We are satisfied that the lighting to be installed on the WTGs is necessary and that R3 of the dDCO [\[REP6-002\]](#) is an appropriate mechanism to secure further details of such lighting to ensure that it is designed in such a way as to ensure that there is no glare or dazzle to pilots and/ or air traffic control
- align with the requirements of paragraphs 5.5.57 and 5.5.58 of NPS EN-1 as, although the radar mitigation solution for Warton aerodrome and a solution for the VHF, UHF and DF radio communications have yet to be operationally proven, we are content that there is a reasonable likelihood of solutions becoming available within the time limit for implementation of the DCO. We are also satisfied that R5, R6, R7 and R9 on the applicant's dDCO [\[REP6-002\]](#) are an appropriate mechanism to secure these
- comply with paragraph 5.5.60 of NPS EN-1 and NWMP policy MW-DEF-1 as we are satisfied that appropriate mitigation can be achieved, and appropriate requirements can be attached to any DCO made to secure those mitigations which requires the consent of the MoD. Therefore the SoS can be satisfied that consent may be granted as it does not present a risk to national security

7. CLIMATE CHANGE AND GREENHOUSE GAS ASSESSMENT

7.1. INTRODUCTION

7.1.1. This chapter deals with two separate but interconnected issues. Firstly, relating to the effects of climate change on the proposed development and its resilience to these effects and secondly, the effects of the proposed development on efforts to meet net zero carbon emissions by 2050.

7.1.2. In our consideration of climate change and greenhouse gas (GHG) assessment, we have had regard to:

- the requirements of Overarching National Policy Statement for Energy (NPS EN-1), in particular sections 2.3 and 5.3, and the NPS for Renewable Energy Infrastructure (NPS EN-3), section 2.4
- the relevant policies of the North West Inshore and North West Offshore Marine Plan (NWMP), particularly policy NW-CC-2
- any matters prescribed in relation to the development
- any other important and relevant matters
 - the Climate Change Act 2008
 - the Climate Change Act 2008 (2050 Target Amendment) Order 2019

7.2. THE APPLICATION

7.2.1. Chapter 21 of the environmental statement (ES) [[REP6-013](#)] considers climate change, which includes a Climate Change Resilience Assessment (CCRA). This chapter was accompanied by appendix 12.1 'Greenhouse Gas Assessment methodology' [[REP5-018](#)] and a Greenhouse Gas Assessment Technical Note [[REP4-062](#)].

7.2.2. The CCRA considers the adaptive capacity of the proposed development to climate change. The GHG assessment seeks to predict the contribution of the proposed development to levels of GHG emissions in the United Kingdom (UK) and the 'net effect' compared with a 'do nothing' baseline.

CLIMATE CHANGE RESILIENCE ASSESSMENT

Baseline and future trends

7.2.3. The scope of the applicant's CCRA was focused on an evaluation of the vulnerability and resilience of the proposed development to the effects of climate change. The applicant therefore considered that the study area was spatially bounded by the application site. The temporal scope was limited to the operation and maintenance phase, that is up to 35 years, but this was segmented into what the applicant considered to be representative 'time slices' for the purpose of characterising the future baseline climate.

7.2.4. The applicant scoped out the construction phase of 2.5 years due to its short length. The only climate hazards being identified during construction were extreme weather events. During this period the applicant intends to include

climate resilience measures in construction-phase management plans as part of standard health and safety practice. While the applicant acknowledged that extreme weather events may occur, these were considered likely to resemble those currently experienced and best practice construction measures would be sufficient to minimise any effects.

- 7.2.5. Because the decommissioning strategy is not known at this stage the applicant also scoped out this phase from the CCRA. The applicant assumed that appropriate measures would be developed once it had become clear how long-term climate change would affect this aspect of the proposed development.
- 7.2.6. The applicant indicated that through design the proposed development would be constructed to best practice engineering codes and standards. It would thus be resilient to current extreme weather events and climatic conditions and adapted to future climate change impacts, where appropriate. The maintenance regime would include regular inspections to identify and remediate any damage and maintain good working conditions.
- 7.2.7. To ascertain current climate conditions in the area the applicant utilised data from the nearest weather station at Blackpool Squires Gate, some 31 kilometres (km) away to the east using data for the period 1991 to 2020, together with data from the Met Office in its 2023 publication 'UK Climate Averages' supplemented with the Met Office's 'Regional Climate Summaries'.
- 7.2.8. To ascertain the future baseline climate, and given the 35 year lifetime of the proposed development, the applicant used 'time slices' of 20 and 30 year averages, depending on the data available. Data was retrieved for two Representative Concentration Pathways (RCP), RCP4.5 and RCP 8.5, based on the 10th, 50th (median) and 90th percentiles from the Intergovernmental Panel on Climate Change. To be robust the analysis followed the median and 90th percentile scenarios.
- 7.2.9. Table 21.21 of chapter 21 of the ES [[REP6-013](#)] sets out the applicant's analysis of the likely rolling average temperature and precipitation rate in the respective RCP4.5 and RCP8.5 scenarios in the 2020 to 2049 and 2050 to 2079 periods. All show increases. The applicant also set out an analysis of the effect on sea temperatures both at 'near bottom' and 'sea level' over the relevant period. These show increases in both locations.
- 7.2.10. In table 21.22 of chapter 21 of the ES the applicant set out that sea levels are forecast to rise to 2100 and beyond. Under RCP8.5, sea level rise will range between 0.17m and 0.32m (10th and 90th percentile respectively) by the mid twenty-first century.
- 7.2.11. The applicant maintained that future extreme sea levels will be driven by changes in mean sea levels and not by any storm surge component or changes to tides.

Operation and maintenance

- 7.2.12. The applicant assessed the vulnerability of the proposed development and its receptors to the climate hazards identified, that is changes in marine climate, sea level change and extreme weather events. It considered that the sensitivity of the proposed development to these would be 'low' due to the proposed development's embedded mitigation, which is set out in paragraph 21.23 of chapter 21 of the ES [[REP6-013](#)]. Having said that, the applicant acknowledged that the proposed development would have a moderate exposure to the identified climate hazards due to its location.
- 7.2.13. Putting these two factors together, and given the 35 year operational lifetime of the proposed development, the applicant considered that there is a 'low' likelihood of climate change aspects adversely affecting the proposed development. This meant the consideration of risk was not necessary. Consequently, the applicant considered that any effects would be 'not significant' in environmental impact assessment (EIA) terms.

Cumulative assessment

- 7.2.14. The applicant considered it "*highly unlikely*" that the proposed development would affect or be affected by neighbouring developments in respect of climate change resilience. Therefore, it did not undertake a cumulative assessment in relation to the aspect.

GHG ASSESSMENT

Baseline and scope

- 7.2.15. The applicant's GHG Assessment considered both the emissions released and those avoided associated with the proposed development. The applicant considered that the study area should not be geographically defined. This is because the applicant considered that emissions released or avoided would have the same effect on atmospheric GHG concentrations regardless of where they occur.
- 7.2.16. The applicant limited the scope to quantifying direct and indirect GHG emissions arising from the proposed development. This took account of processes inherent in construction, including raw mineral extraction, manufacturing, transport and installation, operation and maintenance, end of life and eventual decommissioning.
- 7.2.17. The assessment considered GHG emissions arising from the development of the Morgan and Morecambe Transmissions Assets (M&MTA) project in combination with the lifecycle emissions to consider the overall net contribution to climate change.
- 7.2.18. The applicant set out what it considered to be the 'worst-case' scenario in table 21.2 of chapter 21 of the ES [[REP6-013](#)]. For construction, as well as the physical structures, the applicant considered the vessels and helicopters. Emissions from the materials used during the construction of the proposed development were based on carbon emission data from raw material

extraction. This was considered to be conservative, as the applicant considered using recycled materials may result in lower carbon emissions.

7.2.19. For operation and maintenance, the applicant assumed 35 wind turbine generators (WTG) and 2 offshore substation platforms (OSP) with a design life of 35 years. This included repair and replacement, including spare parts. It also assessed the use of vessels required in two scenarios, a 'standard year' and a 'heavy maintenance year' (1 in 5).

7.2.20. The applicant stated it followed Institute of Environmental Management and Assessment (IEMA) GHG guidance relating to embedded mitigation, and followed a GHG mitigation hierarchy as set out in table 21.3 [REP6-013].

7.2.21. The applicant noted that emissions from electricity production in the UK have decreased by 68% since 1990, the majority being in the last decade. This followed a move from coal and gas to low-carbon production, of which renewables and offshore wind have been key players.

Scenarios assessed

7.2.22. To evaluate the effects of the proposed development the applicant identified two 'do nothing' scenarios to consider, what it described as, "*displacement of emissions associated with the provision of renewable energy*" [REP6-013, paragraph 21.132]. These were:

- Scenario 1 – where it was assumed that electricity from the proposed development would displace generation from 'non-renewable fuel' sources. This approach is advocated for offshore windfarms (OWF) by RenewableUK (2022) and was considered to account for the UK's transition from fossil fuel-based generation sources to renewables.
- Scenario 2 – where it was assumed that electricity from the proposed development displaces all forms of generation as part of the future UK grid mix, using the long-run marginal emission factors from the 'Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal' published by the Department for Energy Security and Net Zero (DESNZ) in 2023.

7.2.23. The applicant considered scenario 1 to be in line with NPS EN-1 as this seeks a step change in the decarbonisation of the UK's energy system. However, scenario 2 would account for the consideration of renewable energy projects as they become operational. This second approach was therefore considered by the applicant to be a conservative assessment. However, this was also considered to be uncertain, since it depends on the pace of innovation in the market, technological feasibility, demand levels and investment decisions.

7.2.24. As set out in chapter 1, the anticipated installed capacity of energy produced by the proposed development during the operation and maintenance phase would be 480 megawatts (MW). This was multiplied by the applicant by the number of hours in a year and the appropriate capacity factor. The capacity factor is defined as the ratio of average power generated by the windfarm

under real-world conditions to its theoretical maximum output and has been identified as 58.4% from the former Department for Business, Energy & Industrial Strategy (BEIS) Round 3 Allocation Framework.

- 7.2.25. Consequently, the anticipated electricity produced by the proposed development would be:
- approximately 2,455,603 megawatt hours (MWh) per year
 - approximately 85,946,112MWh over the 35-year lifetime
- 7.2.26. To compare this with the ‘do nothing’ baselines, the applicant looked at the two scenarios set out in paragraph 7.2.22 of this report. For scenario 1 it estimated the GHG emissions based on the ‘all non-renewable fuels’ emission factor published by DESNZ in 2023 in its ‘Digest of United Kingdom Energy Statistics’. This factor is based on carbon dioxide (CO₂) units rather than carbon dioxide equivalent (CO₂e) which uses the full range of GHGs. However, the applicant considered that CO₂ is likely to form the main contribution to GHG emissions and therefore this may underestimate the calculation. For scenario 2, emissions were quantified by multiplying the electricity generated by the proposed development per year by the long run marginal emission factor for the corresponding year as set out in the Green Book.

Construction effects

- 7.2.27. Table 21.23 of chapter 21 of the ES [\[REP6-013\]](#) set out the applicant’s calculations for the emissions during construction divided into embodied carbon, marine vessels and helicopters. In total this would equate to some 879,741 tonnes CO₂e. Some 87.1% of this relates to embodied carbon and this would be mostly associated with the use of steel, glass fibre and concrete.
- 7.2.28. Overall, on the assumption that it would take place before 2030, construction would sit in the 5th carbon budget period of 2028 to 2032 and that the associated emissions would represent around 0.05% of the relevant budget and thus, according to the applicant, would be a relatively small proportion. This would include emissions occasioned outside the UK for those components sourced there. However, as the receptor is global, these were included.
- 7.2.29. The applicant therefore concluded that the construction effects of the proposed development would be ‘minor’ adverse which it considered non-significant in EIA terms.
- 7.2.30. However, the applicant did agree that there would be opportunities for further reductions in these emissions. These are set out in paragraph 21.171 of chapter 21 of the ES [\[REP6-013\]](#), and would use carbon management processes, including those set out in the ‘PAS 2080: Carbon Management in Buildings and Infrastructure’ document.

Operational and maintenance effects

- 7.2.31. As set out above, during operation and maintenance the main sources of emissions identified by the applicant would be from marine vessels and embodied carbon in spare parts used in repairs and replacements. These are set out in table 21.24 of chapter 21 of the ES [\[REP6-013\]](#) and were estimated to be 517,145 tonnes CO₂e over the 35-year operational lifetime; on average 14,776 tonnes CO₂e per year.
- 7.2.32. The applicant considered this to be a conservative estimate, since the vast majority (96.3%) of these emissions would relate to marine vessels and these were estimated on the basis of marine gas oil, which may be replaced over the lifetime of the proposed development by more sustainable fuels.
- 7.2.33. The first 5-year carbon budget period for operation and maintenance would be the 6th carbon budget period (2033 to 2037). The applicant calculated that emissions released in this period would be around 0.008% of the overall budget. The Climate Change Committee (CCC) has recommended that for the 7th carbon budget period (2038 to 2042) the reduction should be 87% of the baseline. If this figure were to be accepted by government, the applicant calculated that operations and maintenance emissions would contribute 0.01% of that permitted. With these figures in mind the applicant concluded that the magnitude of emissions would be 'negligible'.
- 7.2.34. Initially, the applicant estimated the GHG savings from the proposed development alone and did not take into account the effects of wake-loss on other existing windfarms (see chapter 11). On this basis under scenario 1 as set out in paragraph 7.2.22 there would be a net saving of approximately 35.9 million tonnes CO₂e. Under scenario 2, this would be approximately 901,761 tonnes CO₂e (this was set out in table 21.25 of the original version of chapter 21 of the ES [\[APP-058\]](#)).
- 7.2.35. In light of the discussions during the examination, the applicant submitted a 'Greenhouse Gas Assessment Technical Note' [\[REP4-062\]](#). This included an assessment of the 'netting-off' of:
- the loss of electricity production derived from wake effects on nearby existing OWFs, and
 - the increased emissions from vessels diverted around the proposed development.
- 7.2.36. In relation to the former, there are further complications depending on when the existing windfarms would be decommissioned, repowered or life-extended. As set out in chapter 11 there was debate about this in the examination.
- 7.2.37. The applicant used the figures supplied by the Ørsted IPs (see 'Wake Impact Assessment report' [\[REP3-112\]](#)) for the effects on nearby OWF. At issue specific hearing (ISH) 2 the applicant considered these to be "*probably not a million miles off*" ([\[EV4-009\]](#) at 00:39:03:29 - 00:39:37:25). From this, the applicant calculated the annual energy which would be lost based on

'business as usual' energy production and multiplied this by the wake loss percentage. Then total energy reduction was calculated by multiplying the annual energy loss by the remaining lifetimes as the applicant considered them to be. This was set out in table 4.3 of the 'Greenhouse Gas Assessment Technical Note' [[REP4-062](#)].

- 7.2.38. The applicant calculated a reduction for the additional emissions caused by diverting vessels required to travel further around the proposed development at 1,855 tonnes CO₂e for the lifetime of the proposed development.

Decommissioning effects

- 7.2.39. The applicant has not drawn up a decommissioning strategy. However, it accepted that any decommissioning would be likely to result in marine vessel emissions. Using an industry benchmark, it estimated that this would result in some 16,972 tonnes CO₂e, which would account for some 1.2% of the lifecycle GHG emissions.
- 7.2.40. The applicant anticipated that a large proportion of the wind farm components would be recycled, repurposed or sent to 'energy from waste' at end of life rather than disposed of to landfill, and reported that wind turbine recyclability ranges between 85% and 90%. Other options, such as repowering also may apply.
- 7.2.41. Overall, the applicant considered that decommissioning emissions would have a 'negligible' effect on climate change which would not be significant in EIA terms. It also referred to PAS 2080 measures (see paragraph 7.2.30) to mitigate effects.

Combined effects with M&MTA project

- 7.2.42. As set out in other chapters, the proposed development would only become practical with the M&MTA project. The applicant, therefore, looked at the emissions associated with those elements of the M&MTA project that would allow for the export of energy.
- 7.2.43. The applicant initially apportioned approximately one-quarter of these emissions to the proposed development. This was on the basis that the proposed development would produce around one-quarter of the total energy of the Morgan Offshore Wind Assets project and the proposed development combined.
- 7.2.44. However, in ExQ2CC1 [[PD-015](#)] we asked the applicant to provide a more nuanced, quantitative approach based on those elements of the M&MTA project associated with the proposed development based on the M&MTA application as submitted, and we asked for further clarification of this in our Rule 17 letter [[PD-020](#)] of 10 April 2025.
- 7.2.45. In the final version of chapter 21 of the ES [[REP6-013](#)] the applicant assumed that 50% of the emissions reported in the M&MTA ES would be apportioned to the proposed development. The applicant considered this to

be conservative as none of the main elements, cables (number and length), offshore cable crossings and substations were of this percentage.

Whole lifecycle GHG emissions

- 7.2.46. Table 21.27 of chapter 21 of the ES [\[REP6-013\]](#) set out the applicant's combined assessment for the amount of GHG emitted and 'avoided' in the two scenarios set out in paragraph 7.2.22. This is reproduced as Table 2.

Table 2: Combined GHG emissions assessment

Element	Scenario 1: Non-renewable fuels emissions factor (tonnes CO ₂ e)	Scenario 2: Long-run emissions factor (tonnes CO ₂ e)
Proposed development lifecycle emissions	1,413,858	1,413,858
M&MTA emissions associated with proposed development	179,061	179,061
Wake-loss element (assuming 35 year decommissioning dates)	375,927	27,316
Vessel diversion additional emissions	1,855	1,855
TOTAL OF ABOVE	1,970,701	1,622,090
Avoided emissions compared to 'Do nothing' scenarios	-36,441,151	-1,428,906
NET EFFECTS	-34,470,450	203,184

- 7.2.47. The applicant noted that in scenario 1, the change in emissions would be significantly outweighed by the avoided emissions.
- 7.2.48. In scenario 2 there would not be avoided emissions. However, the applicant purported to show that this would not be a true comparison. This is because it assumed low carbon transition has happened, when, without the proposed development and others like it, this would not be the case. Secondly, the emission factor for 'non-renewable fuels' and the long run marginal factor are considered representative of emissions at the operational use of the relevant generation assets, whereas the full contribution across the lifecycle of the proposed development has been used. Thirdly, the CO₂ emissions associated with the ongoing operation and maintenance of the various schemes affected by wake-loss were omitted meaning that this was not factored into the equation.
- 7.2.49. The applicant estimated that for each kilowatt hour (kWh) of electricity produced by the proposed development there would be some 22.9 grams (g) CO₂e emitted. This figure was compared with other forms of fossil fuel

electricity generation based on their predicted lifecycle GHG intensities (using data from the 2013 publication by the Climate Change Committee 'Reducing the UK's carbon footprint'). This is set out in Table 3, which is derived from paragraph 21.197 of chapter 21 of the ES [[REP6-013](#)].

Table 3: GHG emissions for various electricity production types

Production source	GHG emissions (gCO ₂ e per kWh)
Unabated combined cycle gas turbine	380 to 500
Gas with carbon capture storage	90 to 245
Coal with carbon capture storage	80 to 310
The proposed development	22.9

- 7.2.50. In light of this the applicant believed that the proposed development, together with the relevant elements of the M&MTA project, would positively progress the UK to meet its net zero targets notwithstanding any reductions in emissions avoidance from wake effects on existing OWFs. In environmental impact assessment terms this was considered to be 'beneficial' and significantly so.

Cumulative and Transboundary effects

- 7.2.51. The applicant noted that there is only a single receptor, the global atmosphere. It considered the IEMA guidance from 2022 'Assessing Greenhouse Gas Emissions and Evaluating their Significance' which states that the effects of GHG emissions from specific cumulative projects should not be individually assessed. Any effects were considered to be inherently cumulative and therefore no specific cumulative or transboundary assessment was undertaken.

7.3. ISSUES CONSIDERED DURING THE EXAMINATION

THE CASE FOR INTERESTED PARTIES

Ørsted IPs

- 7.3.1. The main thrust of the Ørsted IPs RRs (see RRs referenced in paragraph 1.4.20) related to the effect on nearby OFWs. This was on the basis that the applicant had not assessed the effects of the proposed development on wind power. This meant that the associated GHG assessment would have, in the Ørsted IPs view, overestimated the emissions saved.
- 7.3.2. In the SoCG between the parties [[REP6-028](#)] Ørsted considered that the GHG assessment underestimated the effects on the basis that the Barrow OWF would be likely to extend beyond the 2030 termination date used. It therefore did not estimate a 'worst-case' scenario. The Ørsted IPs concerns also applied in respect of the cumulative assessment with the Mona and Morgan OWF.

- 7.3.3. The main concerns related to wake-effects rather than the next step GHG assessment and these main concerns are set out and considered more fully in chapter 11 of this report.

Stena Line Ltd

- 7.3.4. Stena Line Ltd (Stena) in its RR [\[RR-078\]](#) noted it had engaged with the applicant in the pre-application stage. Recording the changes to the proposal prior to submission, it noted that the proposed development would increase transit times and use more fuel than at present, resulting in increased GHG emissions in the future.
- 7.3.5. The unsigned SoCG with Stena [\[AS-017\]](#) dealt predominantly with shipping and navigation issues although it noted that the deviation *“is expected to be in the region of 1.31 nautical miles per transit”*.

ISSUES

- 7.3.6. No interested party made representation about climate change resilience. Similarly, no representations were received in relation to the methodology for the GHG assessment, but there were concerns about the inputs.
- 7.3.7. We consider for climate change and greenhouse gas assessment the main important and relevant issues for reporting are:
- Climate change resilience
 - Greenhouse gas assessment
 - Scenarios assessed
 - Wake effect reductions
 - Shipping diversions

Climate change resilience

- 7.3.8. No interested party made representations about this topic area, and equally we had no reason to question the information provided by the applicant. Our considerations, therefore on this topic can therefore be shortly stated.
- 7.3.9. Due to the short period of construction, there are unlikely to be any changes in the climate from the baseline. Extreme weather events are likely to be the same as at the baseline. The applicant has indicated that it would take account of best practice measures to ensure safety and to ensure appropriate longevity.
- 7.3.10. For operation and maintenance, the applicant has taken into account the latest UK Climate Projections. The applicant has demonstrated in section 4 of ‘Response to Actions arising from Preliminary Meeting and Issue Specific Hearing 1’ [\[REP1-086\]](#) that a 35 year lifetime is appropriate.
- 7.3.11. Within this timeframe the UK Climate Change projections show that changes in sea level are likely to be very minor when compared with the height of the WTGs. Changes in sea temperatures are also unlikely to have any material effect.

ExA's considerations on climate change resilience

- 7.3.12. We are satisfied that the proposed development has been appropriately designed to deal with the effects of climate change in the vicinity.

Greenhouse gas assessment

- 7.3.13. There were no representations received which challenged the overall method of assessment directly. Rather there were RRs which dealt with the inputs that applied, and this led us to examine whether, therefore, the final assessment was robust. We also examined further the two assessment scenarios put forward by the applicant.

Scenarios assessed

- 7.3.14. As set out in paragraph 7.2.22 the applicant provided two different scenarios against which it calculated GHGs. After the application had been submitted, but before acceptance, the Supreme Court issued its decision in the case of *R (on the application of Finch on behalf of the Weald Action Group) v Surrey County Council* [2024] UKSC 20, and during the examination the High Court issued its decision in the case of *Friends of the Earth Ltd and South Lakeland Action on Climate Change v Secretary of State for Levelling Up, Housing and Communities* [2024] EWHC 2349 (Admin). We raised the implications of these cases in [PD-011, ExQ1CC1] and ISH2 [EV4-002 to EV4-008]. We were concerned as to whether there might be any 'downstream' effects and whether the 'substitution' argument considered in the second of these two cases was material in relation to scenario 1.
- 7.3.15. In its responses on this topic [REP3-068, REP4-061], the applicant considered that there was no sufficient or clear causal link between the electricity which would be produced by the proposed development and how it would be used such that the implications can be said to be a 'likely significant effect'. "[E]lectricity does not give rise to GHG emissions" [REP4-061, paragraph 30]. While the applicant acknowledged that electricity may power or facilitate activities which in turn give rise to GHG emissions, the chain of causation was considered to be far too remote to say the GHG emissions would be caused by the electricity.
- 7.3.16. The applicant maintained that the GHG assessment "*in attempting to assess the benefits of the renewable electricity, does use the concept of substitution. It presents two scenarios for consideration. However, the concept of substitution is not being used to avoid an assessment, indeed it is part of the assessment*" [REP4-061, paragraph 34]. The applicant noted that there were two 'do nothing' scenarios put forward within the context of an increasing demand for electricity.
- 7.3.17. The applicant maintained that the causal connection here is that if the proposed development were not to proceed, electricity would be needed from elsewhere. Depending on the projection sources available, that would be in the form of either scenario 1 (non-renewable fuel mix) or scenario 2 (wider long-term fuel mix).

- 7.3.18. The applicant concluded that both scenarios “*are examples of substitution, but both are valid to consider in the context in which they are used: assessing the Project emissions savings*” [REP4-061, paragraph 44]. It also took the view that there is no need to make a finding as to which scenario is most appropriate, but rather make the GHG assessment within the context of the chapter as a whole, along with, and secondary to, the clear need for low carbon generation.

ExA’s conclusions on scenarios assessed

- 7.3.19. We agree with the applicant that there would be no direct causal link between the electricity produced and GHG emissions. We are therefore satisfied that the ES appropriately and adequately considers this matter.
- 7.3.20. Turning to the scenarios assessed, in our view, both have advantages, but both have disadvantages as well. Scenario 1 relates to a non-renewable fuel option, which will not occur for the UK to meet its net zero obligations. It is therefore not realistic. But equally, as paragraphs 3.3.8 to 3.3.12 of NPS EN-1 state there are alternatives to the provision of new electricity infrastructure, but it is prudent to plan to ensure that there is sufficient supply of electricity to meet demand. This means that both lower and higher carbon based electricity production are likely to continue.
- 7.3.21. Scenario 2, while utilising the DESNZ Green Book, also relies upon the assumptions therein which can only be, at best, indications of what the energy mix may consist of over the lifetime of the proposed development. Changes in technology, unproven at this time, such as fusion power plants, which are referred to in NPS EN-1, may become practical, as well as other technologies as yet unknown.
- 7.3.22. In our view, reality lies somewhere in between the two scenarios. But equally, we are not in a position to determine this accurately. However, as paragraph 5.3.11 of NPS EN-1 states “*operational GHG emissions are a significant adverse impact from some types of energy infrastructure which cannot be totally avoided government has determined that operational GHG emissions are not reasons to prohibit the consenting of energy projects*”. Paragraph 5.3.12 continues that “[o]perational emissions will be addressed in a managed, economy-wide manner, to ensure consistency with carbon budgets, net zero and our international climate commitments”.
- 7.3.23. With this in mind, we consider what can be reasonably said is that the proposed development would deliver a low-carbon alternative to the production of energy from fossil fuels. While this proposed development would be smaller than both the Mona and Morgan OWF proposals, we consider it would make a significant and substantial benefit to the delivery of the government’s low carbon energy goals.

Wake-effect reductions

- 7.3.24. As set out in chapter 11, we have concluded that the proposed development could result in the reduction of energy produced in nearby OWFs. There is a

dispute on the margin of this relating to whether and/ or when the Barrow OWF would need, as a minimum, additional consents to allow it to continue production. For the reasons set out in chapter 11 we take the view that this is likely to be in the year 2030. Whether the operator would choose to seek those consents, or to decommission the OWF, or look to other alternatives is a matter for them.

- 7.3.25. We note that in the applicant's 'Greenhouse Gas Assessment Technical Note' [REP4-062, table 4.3] it estimated that there would be a loss of electricity produced of some 41.75 gigawatt hours (GWh) per annum. Using the Ørsted IP's response in [REP5-093, appendix 2, table 5] as the basis of our calculation in Table 4 in chapter 11 of this report there would be a loss of 41.9GWh per annum. We consider the difference between the applicant's and Ørsted IP's figures to be within the margin of error given that there is no agreed or definite approach to calculating such losses, and thus the CO₂e figure calculated is sufficiently robust.

ExA's considerations on wake-effect reductions

- 7.3.26. In light of our conclusions, we conclude, therefore, that the assessment is sufficiently robust in this regard.

Shipping diversions

- 7.3.27. As noted in chapter 19 the proposed development would result in diversions on routes through the eastern Irish Sea. This is more pronounced in cumulative terms with the other proposed OWFs in this part of the Irish Sea.
- 7.3.28. There was no dispute at the end of the examination that the increase in fuel burnt should be included in the GHG calculation. The only figure provided was for ferry diversions, not for other shipping that would need to navigate around the application site. However, as set out in chapter 19, the number of vessels affected would be low. No other figure for additional CO₂ emissions was provided.

ExA's considerations on shipping diversions

- 7.3.29. We are therefore satisfied that this part of the overall calculation can be considered to be reasonably robust.

Overall assessment

- 7.3.30. While the proposed development would result in the reduction of potential savings in GHG from the loss of wind power through wake-effects at existing OWFs, and would result in additional GHG from the additional distances that ferries and other shipping would have to travel, these are all comparatively small when compared with the GHG which would otherwise be likely to be emitted if carbon based fuels were to be used instead in the production of electricity. In our view, therefore, these do not materially reduce the benefits of the proposed development.

- 7.3.31. As Table 3: GHG emissions for various electricity production types clearly shows, for each kWh of electricity produced, the proposed development would produce significantly less GHGs than the others identified. In our view, this is the most important factor in determining the weight that should be given to the benefit of the proposed development in relation to GHGs, which, in our view is great.

7.4. CONCLUSIONS

Climate change resilience

- 7.4.1. We are satisfied that the proposed development has been appropriately designed to deal with the effects of climate change in the vicinity having used recent Intergovernmental Panel on Climate Change projections. It would therefore comply with section 4.10 of NPS EN-1, section 2.4 of NPS EN-3, section 2.3 of NPS EN-5 and Policy NW-CC-2 in the NWMP which deal with climate change adaptation and resilience. This is a neutral factor in the planning balance.

GHG assessment

- 7.4.2. We conclude that the proposed development has been appropriately assessed and would result in significant and substantial benefits in reductions in GHG emissions when compared with alternative sources of electricity supply involving the use of carbon based fuels. We have already concluded that these should be given great weight in favour of the proposed development as part of the overall needs case as discussed in chapter 4.
- 7.4.3. While there would be increases in GHG emissions from additional journeys around the application site rather than through it, particularly for ferries, and there would be loss of savings in GHG due to wake loss effects on existing OWFs in the eastern Irish Sea, we are satisfied that these do not materially result in a reduction in the benefits identified.
- 7.4.4. Looking at the proposal in the round, we conclude that the applicant has provided a GHG assessment, dealing with the whole life of the project and setting out various matters it should include. We are also satisfied, in line with paragraph 5.3.8 of NPS EN-1 that the applicant has taken all reasonable steps to reduce GHG during both the construction and decommissioning stages.
- 7.4.5. There are no matters that of themselves relating to climate change that are positive or negative and therefore this is a neutral factor in the overall balance.

8. COMMERCIAL FISHERIES

8.1. INTRODUCTION

8.1.1. This chapter of the report considers the effects of the proposed development on commercial fisheries. Commercial fisheries and fishing were identified as a principal issue in our Rule 6 letter [\[PD-007\]](#), appendix C].

8.1.2. In our consideration of commercial fisheries below, we have had regard to:

- the requirements of the Overarching National Planning Policy Statement for Energy (NPS EN-1) in particular section 4.5 and National Policy Statement for Renewable Energy (NPS EN-3) as set out in section 2.8
- the relevant policies of the North West Inshore and North West Offshore Marine Plan (NWMP) notably NW-CO-1, NW-FISH-1 and NW-FISH-2, NW-FISH-3, NW-AQ-1, NW-AQ-2
- any matters prescribed in relation to the development
- any other important and relevant matters

8.2. THE APPLICATION

8.2.1. The applicant's assessment of the potential impacts of the development on commercial fisheries and fishing was set out in chapter 13 of the environmental statement (ES) [\[REP3-018\]](#) and was supported by a series of figures within [\[APP-097\]](#). Additional information to support the chapter was contained within appendix 13.1 which contains the Commercial Fisheries Technical Report [\[REP2-014\]](#). Other application documents that are relevant include the outline version of the Fisheries Liaison and Co-Existence Plan (oFLCP) which was subject to discussions with stakeholders during the examination with the final version being submitted at deadline (D) 5a [\[REP5a-025\]](#).

8.2.2. The assessment was informed by, and took into account, the findings and conclusions of other relevant topics and chapters of the ES. Those chapters included:

- Chapter 7 'Marine Geology, Oceanography and Physical Processes' [\[REP5a-015\]](#).
- Chapter 8 'Marine Sediment and Water Quality' [\[REP2-010\]](#).
- Chapter 10 'Fish and Shellfish Ecology' [\[REP3-016\]](#).
- Chapter 11 'Marine Mammals' [\[REP4-011\]](#).
- Chapter 12 'Offshore Ornithology' [\[REP6-009\]](#).

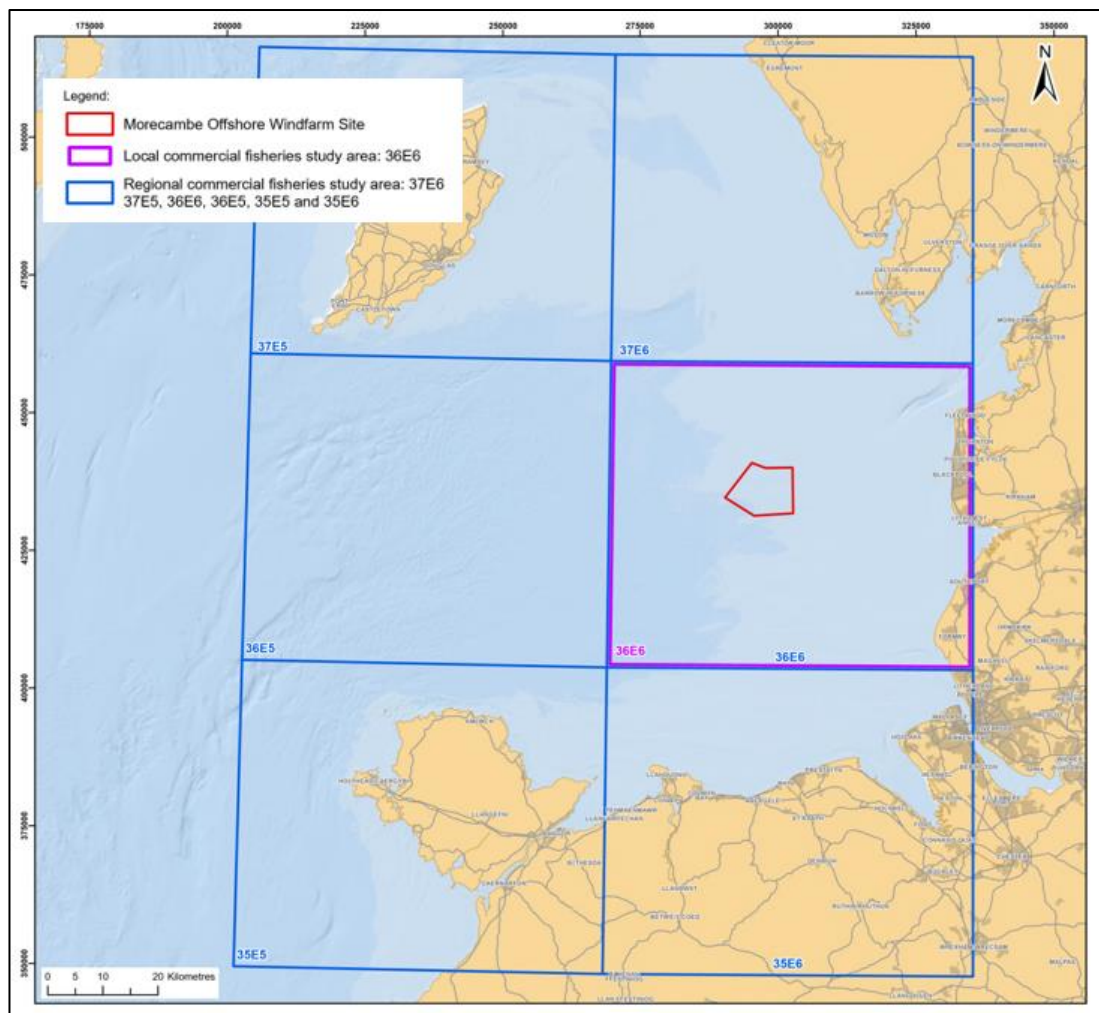
BASELINE

8.2.3. Appendix 13.1 contains the Commercial Fisheries Technical Report [\[REP2-014\]](#) which provided information on the temporal and spatial patterns of fishing activity within the regional and local study areas and information such as vessel and fishing gear types, landing statistics, live weight and value. During the examination the baseline assessment was updated to include additional information on the location of queen scallop potting

grounds, fishing activity within the application site and the spatial activity of beam trawl gear [REP2-014, section 4.1.2 and figures 4.18 to 4.21].

- 8.2.4. The data sources and information used to inform the baseline assessment included site specific surveys, radar and visual observations and landings statistics derived from publicly available records. These sources are summarised in table 13.6 of chapter 13 of the ES [REP3-018].
- 8.2.5. The study areas used for the purposes of the commercial fisheries assessment are illustrated in Figure 9 (below) and are taken from chapter 13 of the ES [APP-097, figure 13.1]. The application site lies entirely within the International Council for the Exploration of the Sea (ICES) rectangle 36E6, defining the local study area. To assess fishing activity near the proposed development, a regional study area was established, covering 36E6 and adjacent rectangles 37E6, 37E5, 36E5, 35E5, and 35E6.

Figure 9: Study areas for commercial fisheries (extract of Figure 13.1 of [APP-097])



- 8.2.6. A description of the different fishing fleets active in the local and regional study areas was provided within section 13.5.2 of chapter 13 of the ES [REP3-018]. The key fleets identified include:

- United Kingdom (UK), Isle of Man and Irish scallop dredgers.

- UK and Isle of Man potters targeting shellfish.
- UK and Belgian beam trawlers targeting sole, plaice and other demersal fish and localised inshore trawling targeting brown shrimp.
- UK inshore vessels under 10m in length targeting a variety of demersal species such as bass using nets and hooked gear.

- 8.2.7. The baseline data showed that dredge and demersal otter trawl vessels targeting king and queen scallop are widespread across the Irish Sea and that there are king scallop and queen scallop grounds located to the west and south of the application site. The application site is located on the fringes of these scallop grounds but there is evidence of some dredge activity for queen scallop taking place within the southern-eastern corner of the application site [[REP2-014](#), figures 4.14 and 4.18].
- 8.2.8. Beam trawl activity is limited across the local study area and the baseline data does not indicate any activity within the application site [[REP2-014](#), figures 4.8 and 4.9]. Non-UK beam trawlers, understood to be primarily Belgian, are active within the local study area but outside and to the north of the application site [[REP2-014](#), figures 4.2, 4.19 and 4.20]. Some otter trawl activity is also evident to the north of the application site which is dominated by non-UK vessels, understood to be Irish vessels [[REP2-014](#), figures 4.3, 4.10 and 4.11].
- 8.2.9. Potting activity was recorded within and around the application site which was corroborated by gear scouting surveys undertaken by the applicant in 2022. At D2 the applicant updated the baseline data to include additional information provided by the Fisheries Liaison Officer (FLO) in 2024. This showed gear marker locations within the middle southern portion of the application site [[REP2-014](#), figures 4.15 and 4.21].
- 8.2.10. In terms of landings data, this indicated that UK vessels registered in Scotland and England are the most active in the local study area. Vessels registered in the Isle of Man and Ireland are active in the wider regional study area although vessels from the Isle of Man do not catch fish or shellfish from the local study area and minimal catches from the local study area were recorded for vessels registered in Ireland. Vessels registered in Belgium and Jersey also catch small quantities from the region and this included from the local study area.
- 8.2.11. Within the local study area, landings by UK vessels were recorded each year between 2016 and 2022. Landings by Isle of Man vessels were only recorded in 2022 and for Jersey vessels landings were recorded in 2016 and 2017. The landings data indicated that landings were almost entirely of shellfish species such as king scallop, queen scallop, whelk and lobster.
- 8.2.12. In the regional study area, landings were also dominated by these same shellfish species. Historic landings statistics sourced from the European Union data collection framework database, indicate that the only non-UK vessels present in the regional study area were Irish dredge and demersal otter trawl vessels targeting king and queen scallop and nephrops in ICES rectangles 36E5 and 37E6 both of which are outside the local study area.

MITIGATION

- 8.2.13. The applicant incorporated what it described as embedded mitigation features into the design of the proposed development to reduce the effects of impacts. These were summarised in table 13.3 of chapter 13 of the ES [\[REP3-018\]](#).
- 8.2.14. Additional mitigation consists of measures that have been identified to further reduce or eliminate any predicted likely significant effects following consideration of the embedded mitigation measures. For commercial fisheries, additional mitigation included a commitment to make compensation/ disruption payments to eligible affected fleets. The oFLCP [\[REP5a-025\]](#) includes reference to the potential payment of disruption payments to eligible affected fleets and that this would be further defined within a final FLCP.
- 8.2.15. The embedded mitigation measures are secured as commitments through requirement (R) 2 of schedule 2 of the draft Development Consent Order (dDCO) [\[REP6-002\]](#) and condition 1 of the draft Deemed Marine Licence (dDML) in schedule 6 of the dDCO. The applicant's commitment to secure and implement a FLCP (which is required to be in accordance with the outline version) is secured by condition 9(1)(k) of the dDML in schedule 6 of the dDCO.

ASSESSMENT OF EFFECTS

- 8.2.16. The realistic worst-case scenarios used in undertaking the assessment for each phase of the proposed development are set out in table 13.2 of chapter 13 of the ES [\[REP3-018\]](#).
- 8.2.17. The applicant considered that impacts would be the same for all phases and these were:
- reduction in access to, or exclusion from established fishing grounds
 - displacement, leading to gear conflict and increased fishing pressure on adjacent grounds
 - displacement or disruption of commercially important fish and shellfish resources
 - increased vessel traffic associated with the proposed development within fishing grounds leading to interference with fishing activity
 - physical presence of infrastructure leading to gear snagging
 - additional steaming time to alternative fishing grounds for vessels that would otherwise fish within the application site
- 8.2.18. A summary of the conclusions relating to commercial fisheries impacts and effects is provided in table 13.25 of chapter 13 of the ES [\[REP3-018\]](#).

Construction and decommissioning effects

- 8.2.19. During the construction and decommissioning phases, the applicant acknowledged that commercial fishing fleets would be prevented from fishing where construction/ decommissioning activities are taking place. This impact

would lead to a localised loss of access to fishing grounds and the fish and shellfish resources within these grounds for the duration of those activities/ works. The localised exclusion of fleets from fishing grounds could also lead to temporary increases in fishing effort in other areas that may already be exploited. This could lead to gear conflict and increased fishing pressure on adjacent grounds in addition to the potential impact of longer steaming distances for fisheries to those grounds while construction/ decommissioning activities are ongoing.

- 8.2.20. Other impacts identified included temporary noise and seabed disturbances because of activities. These could displace commercially important fish and shellfish populations from the area. Increased vessel traffic associated with the construction/ decommissioning activities could also interfere with fishing activity leading to reduced access and displacement. The applicant also identified the installation and presence of infrastructure such as cables, scour and cable protection and WTGs and OSP structures on the seabed as potential snagging risks for fishing gear which could lead to damage to, or loss of, fishing gear.
- 8.2.21. With the exception of UK and Isle of Man potting fleets, the applicant concluded that all project alone effects assessed during the construction phase would be 'minor adverse' or lower and not significant in environmental impact assessment (EIA) terms [[REP3-018](#), table 13.25].
- 8.2.22. For UK and Isle of Man potting fleets, the effects of reduced access to fishing grounds and displacement to UK potting fleets as a result of reduced access were concluded by the applicant to be 'moderate adverse' and so significant. However, through the implementation of the FLCP and application of additional mitigation in the form of disturbance payments to eligible affected fleets, the applicant concluded that the residual effect on UK and Isle of Man potting fleets would be reduced to 'minor adverse' and so not significant in EIA terms [[REP3-018](#), table 13.25].

Operation and maintenance effects

- 8.2.23. During the operation and maintenance phase, the presence of infrastructure such as foundations, scour and cable protection, and cable crossings would reduce access to around 0.51 square kilometres (km²) of the fishing grounds. This represents a loss of 0.6% of the application site. The applicant explained that based on the spacing between infrastructure, it is expected that potting activity would resume within the application site and that some levels of dredge activity could also resume. Although the exclusion from fishing grounds as a result of maintenance works could lead to increased fishing effort in other areas, the applicant submitted that the baseline evidence demonstrates low levels of fishing by mobile gear across the application site and so any impact would be reduced. Furthermore, once those maintenance works were completed, fishers could return.
- 8.2.24. The applicant explained that the number of vessel trips and vessels on site at any one time during maintenance works would be lower than that assessed during construction. When carrying out any works, safety zones would be in

place around those works which would reduce access to areas of fishing ground, albeit to a defined and confined area. These zones would also only be in place for the duration of those works and so any impact would be temporary. The applicant explained that regular and routine monitoring and inspection of cables would also be undertaken and therefore any issues or risks such as snagging would be rectified.

- 8.2.25. Based on the baseline evidence, the applicant submitted that as the application site is not heavily fished compared with surrounding areas, no additional mitigation measures beyond those incorporated and embedded into the design of the proposed development are necessary. Through the implementation of the embedded mitigation measures, the applicant concluded that all project-alone effects to all fleets would be ‘minor adverse’ or lower and so not significant in EIA terms [[REP3-018](#), table 13.25].

Cumulative effects

- 8.2.26. Table 13.16 of chapter 13 of the ES [[REP3-018](#)] identified which project-alone impacts the applicant considered have the potential for a cumulative effect on receptors and so were taken forward as part of the ‘combined assessment’. For commercial fisheries, this included reduced access to fishing grounds (all phases); displacement leading to gear conflict and increased fishing pressure on adjacent grounds (all phases), and displacement or disruption to commercially important fish and shellfish resource (all phases).
- 8.2.27. Table 13.18 [[REP3-018](#)] sets out the various plans and projects that the applicant considered as part of the ‘all projects assessment’. In respect of commercial fisheries this included developments that fall within the study area of the Irish Sea.
- 8.2.28. For the ‘combined assessment’ the applicant concluded the cumulative effects would be of no greater significance than those concluded for either the proposed development or the M&MTA. Therefore, overall, the applicant concluded that the combined residual effects would range from ‘negligible adverse’ to ‘minor adverse’ for all impacts and all fleets and so be not significant in EIA terms [[REP3-018](#), paragraph 13.247].
- 8.2.29. For the ‘all projects’ scenario the applicant found significant ‘moderate adverse’ effects during the construction and decommissioning phases for the UK and Isle of Man dredge and demersal otter trawl (scallop) fishery and the UK and Isle of Man potting fleets. This related to reduction in access and/ or displacement impacts and disruption to scallop resource. The applicant explained that the inclusion of the Mona, Morgan and Mooir Vannin offshore wind farms, along with Marine Protection Areas (MPAs) and the expected management of mobile gear within MPAs, were key factors which led to the conclusion of a significant cumulative effect in EIA terms. However, the applicant asserted that the management of MPAs and this cumulative effect cannot be mitigated by the proposed development itself; however the contribution made to this overall cumulative effect by the proposed development would be low.

- 8.2.30. Notwithstanding the above position, the applicant stated that it was committed to the monitoring of commercial fisheries data pre-, during and post-construction with the aim to understand variations in commercial fisheries activity in response to the construction of the proposed development. This is committed to within the In Principle Monitoring Plan (IPMP) [\[REP6-017\]](#) submitted in support of the application and this information would be used to inform updates to the final FLCP which would be based on the outline version [\[REP5a-025\]](#). The FLCP also provides a mechanism for involvement and participation in a potential regional fisheries working group as required. The final FLCP is required to be submitted for approval under Condition 9(1)(k) of the dDML within schedule 6 of the dDCO [\[REP6-002\]](#).

Transboundary effects

- 8.2.31. The applicant concluded that transboundary impacts were unlikely to occur given the localised nature of the potential impacts and very limited foreign fishing fleet activity within the regional study area and application site [\[REP3-018\]](#), paragraph 13.294].
- 8.2.32. The applicant explained that the baseline data identified the main king scallop and queen scallop grounds as lying outside the application site and so, based on the 'negligible adverse' to 'minor adverse' effects of disruption to commercial species during all phases of the proposed development, the impact on stocks in Irish and Isle of Man waters was considered to be low. The potential transboundary impact of the development on commercial fish stocks in the waters of other states were therefore concluded by the applicant to have a 'minor adverse' effect, so not significant in EIA terms [\[REP3-018\]](#), paragraph 13.295].
- 8.2.33. The applicant also concluded that, given the baseline evidence and lack of vessel activity within the application site, the effects of reduced access to fishing grounds and displacement into alternative grounds on commercial fishing fleets from the Republic of Ireland and Belgium would also be unlikely. The potential transboundary impact of constraints on foreign commercial fishing activities was concluded to have a 'negligible adverse' effect and so would not be significant in EIA terms [\[REP3-018\]](#), paragraph 13.296].

8.3. ISSUES CONSIDERED DURING THE EXAMINATION

THE CASE FOR THE INTERESTED PARTIES

National Federation of Fishermen's Organisations and the Welsh Fisheries Association

- 8.3.1. The National Federation of Fishermen's Organisations and the Welsh Fisheries Association (NFFO/ WFA) [\[RR-059\]](#) raised concerns about the displacement of commercial fishing as a result of the proposed development. The NFFO/ WFA disagreed with the applicant's conclusions that for the project alone, following mitigation, there would be no significant adverse effects on commercial fisheries. Whilst the NFFO/ WFA welcomed the

applicant's development of a FLCP in the statement of common ground (SoCG) [REP5a-034] they disagreed that commercial fisheries, specifically mobile gear, would likely return to affected areas post construction.

- 8.3.2. The SoCG [REP5a-034] confirmed that all matters in relation to commercial fisheries were agreed with the exception of those relating to the assessment methodology and applicant's conclusions regarding the project-alone and cumulative effects of the proposed development. The NFFO/ WFA's final position within the framework of the EIA regulations, was that the methodology used across the industry should be developed in the future so as to capture more accurately the socio-economic and cultural effects of such proposals on commercial fishers. The NFFO/ WFA also maintained their view that the resumption of fishing post construction had yet to be proven; however they supported the applicant's commitment to carry out post-construction monitoring.

Agentschap Landbouw and Zeevisserij (The Flemish Agency for Agriculture and Fisheries)

- 8.3.3. The Agentschap Landbouw and Zeevisserij (The Flemish Agency for Agriculture and Fisheries) (The Flemish Agency) [AS-011 and OD-006] commented that it did not agree with the applicant's conclusions regarding the impact of the proposed development on the Belgian fisheries active in the Morecambe area. It was stated that ICES rectangle 36E6 and the surrounding area is an important area for the Belgian fisheries and it was concerned the data used in the technical report supporting the assessment only covered the period 2012 to 2016. This data was therefore not recent and failed to reflect accurately current activity and the importance of the area to Belgian fisheries. The Flemish Agency therefore commented that chapter 13 of the ES should be re-evaluated, and more recent data used to take into account current activity.
- 8.3.4. No further representations or submissions were made by The Flemish Agency during the examination.

The Traditional and Sustainable Commercial Fishing Association

- 8.3.5. The Traditional and Sustainable Commercial Fishing Association (TSCFA) [RR-083] stated it was concerned that heavy piling and construction noise associated with the proposed development (and that of other wind farms in the area) could have an effect on the migration routes of sea bass. It stated that sea bass is highly sought after and was concerned that the proposed development could affect the migration routes of sea bass resulting in effects on the businesses of its members and their way of life.
- 8.3.6. No further representations or submissions were made by the TSCFA during the examination.

Isle of Man Government (Territorial Sea Committee)

- 8.3.7. The Isle of Man Government (Territorial Sea Committee) (IoMTSC) [RR-031] noted that good efforts had been made by the applicant to consult with the

IoMTSC but noted some inconsistencies in the baseline data presented in chapter 13 of the ES [REP3-018] and the supporting technical report relating to the number of years, period and type of fishing activity data used to characterise the baseline of the regional fisheries. The IoMTSC submitted that post construction monitoring of fishing activity should therefore be carried out.

8.3.8. The IoMTSC attended our issue specific hearings and provided responses to our written questions [REP3-106], and continued to hold discussions with the applicant throughout the examination period with updates on those discussions being provided principally through the various iterations of the SoCG.

8.3.9. In the final SoCG [REP5a-037] with the IoMTSC:

- Whilst amendments to the baseline data were made by the applicant to address the inconsistencies previously identified by the IoMTSC, minor errors and inconsistencies remained. However, it was agreed that these did not have any material impact on the conclusions of the ES.
- For the project-alone it was agreed that, with mitigation in place, no significant effects in relation to commercial fisheries or Isle of Man fisheries have been identified outside key scallop grounds.
- In relation to cumulative impacts, moderate significant cumulative effects during the construction and decommissioning phases for the UK and Isle of Man dredge and demersal otter trawl (scallop) fishery and the UK and Isle of Man potting fleets had been identified related to reduction in access and/ or displacement impacts when considering all potential plans and projects.
- Given the low contribution made by the proposed development to the cumulative effects, mitigation through the FLCP and a commitment to carry out 5 years post construction monitoring as set out within the IPMP was agreed.

North West Wildlife Trusts

8.3.10. The North West Wildlife Trust [RR-065] offered no detailed comments, but commented that post construction monitoring of fishing patterns should be carried out. Local fishermen have indicated wind farms have impacted on their catches over the years although this is anecdotal and there is currently no evidence to prove or disprove this theory. Post construction monitoring would therefore provide an opportunity to collect data to inform future decisions. No further written representations or submissions were made during the examination.

Bodorgan Marine Limited

8.3.11. Bodorgan Marine Limited (BML) did not submit a relevant representation (RR) and so was not an Interested Party (IP) in the examination. However, during the course of the examination BML did make several detailed written representations [AS-013, REP3-098, REP6-055] which we accepted at our discretion. BML also attended our issue specific hearing [EV5-002 to EV5-007] and submitted post hearing summaries [REP4-068] and we asked

questions of BML in our second of written questions [[PD-018](#), 2CF1 and 2CF3]. BML's response to those questions is set out in its representations received at D5 [[REP5-088](#), pages 9 to 16].

- 8.3.12. BML submitted that the applicant failed to carry out sufficient consultation with representatives of the aquaculture industry. This failure meant the applicant had not taken into account potential impacts on aquaculture activities or provided for any effective enhancement measures to support the co-location of aquaculture, for example offshore mussel farms, within the proposed development footprint.
- 8.3.13. BML argued that the terms of The Crown Estate (TCE) agreement for lease would effectively sterilise an area of 87km² of the sea which it considered would be suitable to support aquaculture activities. BML suggested that modifications to the TCE lease agreements should therefore be made to allow for aquaculture to co-exist within offshore wind farm sites. In the absence of this it was argued that modifications to any DCO granted should be made, alongside revisions to the oFLCP [[REP5a-025](#)], which would secure marine blocks within the application site to be used for the benefit of BML for the purposes of aquaculture [[REP6-055](#), section 5, paragraph 39(2)].
- 8.3.14. BML concluded that in its view the applicant had failed to demonstrate compliance with the requirements of NPS EN-1 (particularly paragraph 4.5.3) or NPS EN-3 (paragraphs 2.5.2; 2.8.19; 2.8.47 to 2.8.48; 2.8.158 and 2.8.250 to 2.4.8.251) and argued that due to this the DCO should not be made.

ISSUES

- 8.3.15. By the close of the examination the applicant had largely agreed all matters with IPs relating to the assessment of potential effects on commercial fisheries. We have therefore focused and reported on those matters where disagreement remained or had not been resolved by the close of the examination and which we consider to be important and relevant. These can be summarised as follows:

- effects of reduced access and displacement on commercial fisheries
- effects of construction noise on sea bass
- aquaculture

Effects of reduced access and displacement-on commercial fisheries

- 8.3.16. The NFFO/ WFA raised concerns about the effects of reduced access and displacement of fishing activities because of the proposed development. The NFFA/ WFA disagreed with the applicant's conclusions that the project-alone effects would not be significant and contended that commercial fisheries, specifically mobile gear, would be unlikely to return to affected areas post construction.
- 8.3.17. The applicant responded to the NFFO/ WFA's RR [[PD1-011](#), section 4.14] highlighting that, amongst other matters, the assessment had found relatively

low levels of activity by mobile gear fleets within the application site. The applicant pointed out that its assessment had concluded there would be a 'moderate adverse' effect on the UK potting fleet during construction; however, for all mobile and all other static gears the effect of displacement had been found to be 'minor adverse' or lower. To reduce this effect additional mitigation, in the form of displacement payments delivered through the FLCP, would be secured which would lower the residual effects to potting fleets to 'minor adverse'.

8.3.18. In our first written questions [[PD-011](#), 1CF7] we sought views and clarification from the NFFO/ WFA on the applicant's response, and in particular asked whether they had any evidence to support their position that mobile fishing activities have not returned to pre-construction levels in areas affected by other offshore wind farms. We also asked whether there were any specific design issues with the proposed development such as the nominal distances between WTGs that they considered would prevent skippers from returning post-construction as well as, given the findings of the ES, why they considered the effects of displacement had been underestimated [[PD1-011](#), 1CF7 and 1CF8]. We also sought its views on the content of the outline FLCP and dDCO [[PD-011](#), 1CF14 and 1DCO9].

8.3.19. The NFFO/ WFA submission at D4 [[REP4-072](#)] noted that the baseline evidence showed low levels of mobile gear activity within the application site. They also advised that to their knowledge, whilst there was some evidence of mobile fishing gear operating within the array area of a wind farm in Scotland, this only related to a single vessel and so was not reflective of fleet activity. The NFFPO/ WFA commented that every wind farm is different with factors such as the distance between WTGs, the orientation of fishing lanes and environmental conditions all influencing a skipper's decision as to whether the risk of fishing within a wind farm array area would be acceptable or not. Until exact details of the layout and position of WTGs, cable routing and cable protection is known therefore, the NFFO/ WFA stated they had to assume that there would be more barriers to mobile fisheries returning than enablers. As a result, they disagreed with the applicant's conclusions.

ExA's considerations on the effects of reduced access and displacement on commercial fisheries

8.3.20. Based on the evidence before us we are satisfied that the project alone impacts of reduced access and displacement during the construction and decommissioning phases would be temporary and limited largely to the UK and Isle of Man potting fleets which are present within the application site. To mitigate the effects of reduced access and temporary displacement, the oFLCP [[REP5a-025](#)] confirms that affected fleets would be eligible for disruption payments. Further details for this would be set out in the final iteration of the FLCP which is secured by condition 9(1)(k) of the dDML within schedule 6 of the dDCO [[REP6-002](#)].

8.3.21. Consequently, whilst there could be periods of reduced access and displacement, we are satisfied that those effects would be for a temporary

period, restricted to only certain phases of the development and based on the evidence before us, likely to only affect a limited number of fleets.

- 8.3.22. During the operational phase, we are not persuaded by the NFFO/ WFA assertion that the presence of the proposed development would prevent fishers from returning, as there is no substantive evidence before us to support this position. Whilst the final layout and location of WTGs and seabed infrastructure has yet to be determined, we see no reason why potting fisheries could not return within the footprint/ area of the application site. Furthermore, given the design parameters including minimum spacing between WTGs and other embedded mitigation measures used, we also see no reason why other fisheries such as trawl and dredge fisheries would be prevented from fishing within the application site should they wish to do so.
- 8.3.23. In terms of cumulative effects, although we acknowledge that there would be potential significant 'moderate adverse' effects on UK dredge fishery, UK potting fleets and UK and Isle of Man dredge and demersal otter trawl fisheries, the contribution of this development to those effects would be small given the size of the development. The effects of the proposed development during its construction/ decommissioning phases could be reduced through the FLCP and during the operational phase, once again, there is nothing in the information before us that would, in our view, prevent fishers from returning to fish within the footprint/ area of the application site should they choose to. Therefore, whilst we are satisfied that the FLCP would be sufficient to reduce the contributory effects that the proposed development would make to these overall cumulative effects, we accept this would not remove all cumulative effects given the number of other offshore wind projects that are being proposed and so could be in existence over the same timeframe.
- 8.3.24. In response to the Flemish Agency's concerns (see paragraph 8.3.3) the applicant responded [[PD1-011](#), section 4.27] and at D2 updated appendix 13.1 [[REP2-014](#)] which included providing a longer time set of data and presentation of this data [[REP2-014](#), figures 4.19 and 4.20] along with a subsequent update to chapter 13 of the ES [[REP3-018](#)]. The applicant stated that whilst the spatial data indicated beam trawl activity occurring within ICES 36E6 and occasional activity within the application site, higher intensity fishing by beam trawling takes place outside and to the north and north-west. The applicant therefore submitted that the conclusions of the assessment remain unchanged with 'minor adverse' effects being concluded for Belgium fleets, which are not significant in EIA terms [[REP3-018](#), table 13.2].
- 8.3.25. No further written representations or submissions were made by The Flemish Agency and as such we did not consider it necessary to ask any questions or to explore this matter further. We have no reason to disagree with the applicant's conclusions regarding the effects of the proposed development on Belgian fisheries and therefore concur that the effects would not be significant in EIA terms.

- 8.3.26. The oFLCP [\[REP5a-025\]](#) confirms the applicant's commitment to updating the fishing industry on the timing and location of any construction works and therefore fishers would be notified and aware of periods when they would be restricted from entering the application site. The oFLCP also includes reference to the potential payment of disruption payments to eligible affected fleets and that this would be further defined within a final FLCP. The final FLCP is secured by condition 9(1)(k) of the dDML within schedule 6 of the dDCO [\[REP6-002\]](#).

Effects of construction noise on sea bass

- 8.3.27. At the RR stage the TSCFA [\[RR-083\]](#) raised concerns about the effects of construction noise impacting on the migration routes of sea bass.
- 8.3.28. The applicant responded to the TSCFA's comments [\[PD1-011\]](#), section 4.21] confirming that impacts on migratory fish, including bass, and effects on inshore fisheries such as the bass fishery had been assessed. The applicant explained that effects on fish resources such as noise had been assessed in chapter 10 of ES [\[REP3-016\]](#) and that the outline Underwater Sound Management Strategy (oUWSMS) [\[REP5a-042\]](#) set out its approach and measures that would be implemented to manage underwater noise. These measures would reduce effects on fish. The requirement to submit a final version of the UWSMS for approval is secured by condition 20 of the dDML within schedule 6 of the dDCO [\[REP6-002\]](#).
- 8.3.29. No further comments or response from the TSCFA was received during the examination and as such we did not consider it necessary to ask any questions or to explore this matter further. As detailed in paragraphs 9.2.30 and 9.2.41 of this report, the applicant concluded that the impact of underwater noise and vibration, and their associated barrier effects on all assessed fish species (which includes sea bass) would be no greater than 'minor adverse' and therefore not significant in EIA terms.
- 8.3.30. To reduce those effects, the measures within the oUWSMS [\[REP5a-042\]](#) would be implemented. The oUWSMS has been subject of discussions during the examination and updated in response to comments received from other IPs including the Marine Management Organisation (MMO). As outlined in paragraph 9.3.28 of this report, there is broad consensus on the mitigation measures proposed in the oUWSMS to manage noise impacts. Given the correlation between the effects on the sea bass resource and the impact on fisheries targeting this species, as confirmed in paragraphs, the applicant has concluded the overall effects to be 'minor adverse' and so not significant in EIA terms.

ExA's considerations on the effects of construction noise on sea bass

- 8.3.31. We find no reason to dispute the applicant's conclusions regarding the effects of the proposed development. While we acknowledge and accept that the assessment has identified the potential for impacts on sea bass, we are satisfied that these effects would not be significant in EIA terms.

Aquaculture

- 8.3.32. BML was not an IP for the purposes of this examination as it did not submit a RR. Nevertheless, we invited and accepted written submissions from BML into the examination [[AS-013](#), [REP3-098](#), [REP4-068](#), [REP5-088](#), [REP5a-025](#) and [REP6-055](#)] and we have had regard to all of these in our consideration of matters relating to commercial fisheries.
- 8.3.33. We have also had regard to the responses from the applicant and TCE [[REP5a-075](#)] to our second and third set of written questions [[PD-015](#), 2CF1 to 2CF3 and [PD-018](#), 3CF1] and the applicant's responses provided at D4 and D6 [[REP4-058](#), section 2.5; [REP4-059](#), pages 49 to 51 [REP6-039](#), section 3].

ExA's considerations on matters relating to aquaculture

- 8.3.34. We note many of BML's criticisms and concerns focus on issues relating to the powers of TCE and in particular the terms of its lease agreements for offshore wind development. Since these matters fall outside our remit and the scope of this examination, we have concluded that they are not important and relevant to our consideration of the application. As a result, we have not considered it necessary to explore or consider these concerns further.
- 8.3.35. We disagree with BML's contention that the applicant failed to consult properly or to consider the impacts of the development on aquaculture. It is clear from the evidence before us (as set out in the Consultation Report [[REP1-002](#)] and summarised in chapter 13 of the ES [[REP3-018](#), table 13.1]) that the applicant carried out extensive consultation during the pre-application stage. This process involved early consultation with statutory advisors, representatives of the fishing industry and appropriate fisheries groups to identify impacts and seek information to support its assessment. The final SoCGs agreed with other commercial fisheries IPs such as the NFFO [[REP5a-034](#), NFFO-CF-1] and IoMTSC [[REP5a-037](#), TSC9] confirm and further verify our view that adequate consultation had been carried out.
- 8.3.36. The application site does not overlap an existing or proposed strategic area for sustainable aquaculture as referenced within Policy NW-AQ-1 of the NWMP. During the examination and through its written submissions BML has confirmed that *"it is not currently in a position to apply for a marine license"* and that *"Co-located aquaculture needs to follow OWF development. In other words, co-located aquaculture can only be deployed once an OWF has been constructed, to carry out aquaculture"* [[REP4-068](#), pages 2 and 3]. It is therefore evident that BML is not actively carrying out any aquaculture activities within or near to the application site. We therefore consider that aquaculture is not an existing commercial fishing activity that required inclusion in the applicant's assessment and that the proposed development would not impact on any existing or strategic areas for aquaculture.
- 8.3.37. Given that aquaculture is not currently take place within or near to the application site, and there is nothing before us to suggest that BML's plans and proposals are likely to materialise within a timeframe that is proximate to

the construction or operation of the proposed development, we consider it does not constitute a commercial fishery or fishing activity for the purposes of NPS EN-3. Consequently, we are satisfied that the applicant's assessment and the mitigation it has identified to minimise and reduce impacts on commercial fisheries that are existing and active within the study area is an appropriate approach.

8.3.38. Furthermore, due to the lack of any details relating to BML's proposed activities, we consider it would not be reasonable or proportionate to require the applicant to assess and identify potential impacts on an activity that is not taking place. We also consider it unnecessary nor reasonably possible for the applicant to provide mitigation or enhancement to accommodate aquaculture within its design at this stage. However, we note and welcome the applicant's commitment to consider enhancement measures and opportunities at the detailed design phase when further specific details about the mitigation design are known. This commitment is recorded in the Design Statement [REP5a-007, Item DC23] and is secured within condition 9(1)(a) of the dDML contained within schedule 6 of the dDCO [REP6-002].

8.3.39. In summary, we do not agree with BML's position that the applicant has failed to adequately consult, assess or address impacts in relation to aquaculture. We are satisfied that the applicant has complied with the relevant provisions of NPS EN-1 paragraph 4.5.3 and NPS EN-3 (specifically paragraphs 2.8.154, 2.8.157 to 2.8.163 and 2.8.250 and 2.8.251) and the NWMP policies NW-CO-1, NW-FISH-1 and NW-FISH-2, NW-FISH-3, NW-AQ-1 and NW-AQ-2. We are also satisfied that all relevant matters as set out within paragraphs 2.8.318 to 2.8.324 have been satisfactorily addressed and there are no outstanding matters which weigh against the Order being made.

8.4. CONCLUSIONS

8.4.1. We are satisfied that the applicant has carried out appropriate consultation with statutory advisors, representatives of the fishing industry and appropriate fisheries groups in order to identify impacts to support its assessment on commercial fisheries. We are content that the assessment undertaken by the applicant contains robust baseline data and detailed surveys of the effects on fish stocks of commercial interest. The applicant has demonstrated that due regard to the impact of the proposed development on fishing activities was given as part of its site selection process. The proposed development would not be in an important fishing ground and nor would it significantly impede fishing activities. We are therefore content that the proposed development complies with paragraphs 4.5.8 and 4.5.9 of NPS EN-1 and paragraphs 2.8.153 to 2.8.155, 2.8.157 to 2.8.160, 2.8.163 and 2.8.164 and 2.8.318 to 2.8.322 of NPS EN-3.

8.4.2. We are satisfied that the mitigation measures incorporated into the design of the development, which would be secured as part of the dDCO, would avoid, minimise and mitigate the impacts of the development on commercial fisheries. To reduce residual effects further, the applicant has committed to carrying out monitoring and mitigation measures within the outline FLCP

[REP5a-025] secured by Condition 9(1)(k) within schedule 6 of the dDCO [REP6-002]. The applicant has also committed to considering opportunities and enhancement measures for commercial fisheries post consent. We are therefore content that the proposed development complies with paragraphs 2.8.48, 2.8.250, 2.8.251 and 2.8.323 of NPS EN-3.

- 8.4.3. We concur with the applicant's conclusions that, with the exception of effects on UK and Isle of Man potting fleets, during the construction and decommissioning phases all residual effects would be 'minor adverse' or lower in terms of their significance and not significant in EIA terms. For those fleets where impacts have been found to have a 'moderate adverse' effect, we are satisfied that, through the implementation of additional mitigation, the residual effect would be reduced to 'minor adverse' and so not be significant in EIA terms.
- 8.4.4. Taking all the relevant documentation and evidence into account, we have no reason to disagree with the applicant's conclusions regarding the residual effects of the proposed development during the construction and decommissioning phases. We therefore consider and conclude that these effects should be afforded a neutral weight in the planning balance.
- 8.4.5. We concur with the applicant's conclusions that, during the operation and maintenance phase, all residual effects on all fleets would be 'minor adverse' or lower in terms of their significance and not significant in EIA terms. Overall, we therefore consider and conclude that these effects should be afforded a neutral weight in the planning balance.
- 8.4.6. In terms of cumulative effects, we acknowledge and accept that there would be potential 'moderate adverse' significant effects on UK dredge fishery, UK potting fleets and UK and Isle of Man dredge and demersal otter trawl fisheries. During the construction and decommissioning of the proposed development, any contributory effects would be reduced through the FLCP. During the operational phase, there is nothing in the information before us which would prevent fishers from returning to fish within the footprint/ area of the application site should they choose to. Therefore, whilst we are satisfied that the FLCP would be sufficient to reduce the contributory effects that proposed development makes to these overall cumulative effects, we accept this would not remove all cumulative effects given the number of other offshore wind projects that are being proposed and so could be in existence over the same timeframe. Overall, we consider and conclude that the cumulative effects of the development on commercial fisheries should be afforded moderate negative weight in the planning balance.
- 8.4.7. In response to the objection raised by BML, we conclude that most of its issues relate to the powers of TCE and lease arrangements and fall outside our remit. For those which fall within our remit, the application site does not overlap an existing or proposed strategic area for sustainable aquaculture as referenced within policy NW-AQ-1 of the NWMP. Furthermore, there is nothing before us to suggest that BML's plans and proposals are likely to materialise within a timeframe that is proximate to the construction or

operation of the proposed development, and therefore this does not weigh against the proposed development.

8.4.8. Overall, when considered together, we conclude that the effects of the proposed development on commercial fisheries as a whole should be afforded a little negative weight in the planning balance.

8.4.9. In our view, the applicant's proposals and the proposed development would:

- comply with paragraphs 4.5.8 and 4.5.9 of NPS EN-1 and paragraphs 2.8.154, 2.8.155, 2.8.158 to 2.8.160, 2.8.164 and 2.8.322 of NPS EN-3 as the applicant has carried out and completed a Marine Plan assessment and appropriate early consultation with statutory advisors, representatives of the fishing industry and appropriate fisheries groups to identify impacts to support its assessment and appropriate safety zone zones around offshore infrastructure during construction activity and the operation and maintenance phase
- comply with paragraphs 2.8.153, 2.8.157 to 2.8.163 of NPS EN-3 as an assessment has been undertaken that contains robust baseline data, detailed surveys of the effects on fish stocks of commercial interest and which has considered both direct and indirect impacts on a diverse range of different fishing activities and gear types
- comply with paragraphs 2.8.318, 2.8.319 and 2.8.323 of NPS EN-3 as the proposed development would not be in an important fishing ground nor would it significantly impede fishing activities. We are also satisfied that the applicant has sought to design the proposal to minimise the loss of fishing opportunities and impacts to fishing activity by having due regard to fishing activities as part of its site selection process and through adjustments to the Order Limits made prior to the submission of the application which have helped reduce the effects on fish stocks, spawning grounds and the activity of fishing itself
- comply with the requirements of paragraphs 2.8.48, 2.8.250, 2.8.251 and 2.8.323 of NPS EN-3 as mitigation measures have been incorporated into the design of the development to avoid, minimise and mitigate the impacts of the development on commercial fisheries. Commitments to carry out monitoring and to consider enhancement opportunities and measures to support co-existence/ co-location have also been given and these are recorded the Design Statement [[REP5a-007](#), Item DC23] and the oFLCP and secured by conditions 9(1)(a) and 9(1)(k) of the dDML contained within schedule 6 of the dDCO [[REP6-002](#)]
- comply with NWMP policies NW-CO-1, NW-FISH-1 and NW-FISH-2, NW-FISH-3, NW-AQ-1 and NW-AQ-2

9. FISH AND SHELLFISH ECOLOGY

9.1. INTRODUCTION

- 9.1.1. This chapter considers the effects of the proposed development on fish and shellfish ecology. Fish and shellfish ecology was identified as a principal issue in our Rule 6 letter [\[PD-007\]](#), appendix C] and forms part of our much broader consideration of issues relating to biodiversity and ecology.
- 9.1.2. Effects on Special Areas of Conservation (SAC) in a Habitats Regulations Assessment (HRA) context are discussed separately in the Report to Inform Appropriate Assessment (RIAA) [\[REP5a-009\]](#) and are reported on in chapter 22 of this report.
- 9.1.3. In our consideration of this issue, we have had regard to:
- the requirements of the following designated national policy statements
 - Overarching National Policy Statement for Energy (NPS EN-1)
 - National Policy Statement for Renewable Energy (NPS EN-3) as set out in section 2.8
 - National Policy Statement for Electricity Network Infrastructure (NPS EN-5) in particular section 2.11 and notably paragraph 2.11.13
 - the relevant policies of the North West Inshore and North West Offshore Marine Plan (NWMP) in particular NW-FISH-3, NW-BIO-1, NW-DIST-1 and NW-UWN-2
 - any matters prescribed in relation to the development
 - any other important and relevant matters

9.2. THE APPLICATION

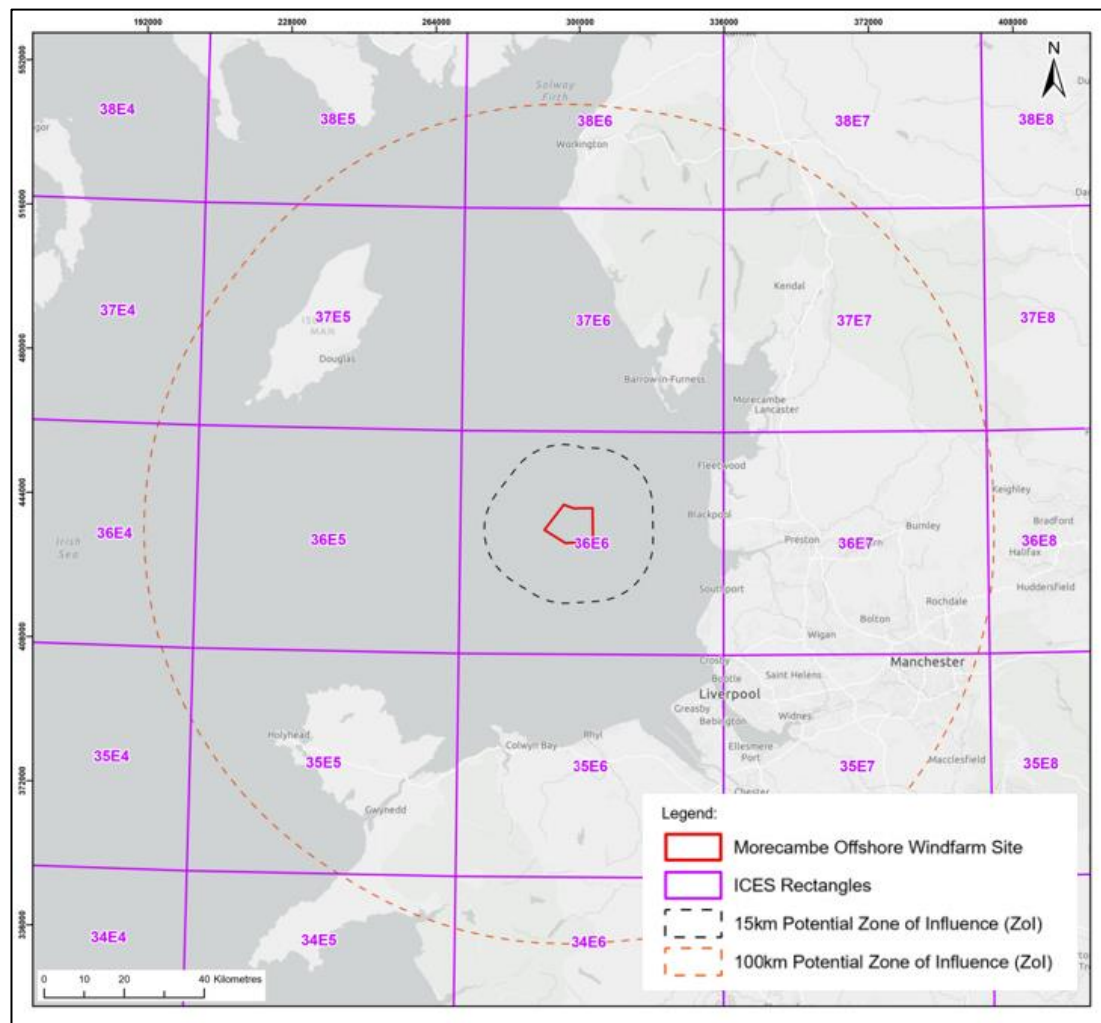
- 9.2.1. The applicant's assessment in relation to impacts on fish and shellfish ecology was principally set out in chapter 10 of the environmental statement (ES) [\[REP3-016\]](#) and was supported by a series of figures within [\[PD1-008\]](#). Additional information to support the chapter included appendix 9.1 which contained the Benthic Characterisation Survey [\[APP-063\]](#) and appendix 11.1 which contained the Underwater Noise Assessment [\[REP4-013\]](#).
- 9.2.2. The assessment was informed by, and took into account, the findings and conclusions of other relevant topics and chapters of the ES. Those chapters included:
- Chapter 7 'Marine Geology, Oceanography and Physical Processes' [\[REP5a-015\]](#).
 - Chapter 8 'Marine Sediment and Water Quality' [\[REP2-010\]](#).
 - Chapter 11 'Marine Mammals' [\[REP5a-019\]](#).
 - Chapter 12 'Offshore Ornithology' [\[REP6-009\]](#).
 - Chapter 13 'Commercial Fisheries' [\[REP3-018\]](#).
- 9.2.3. The following documents are also relevant and were subject to discussions with stakeholders during the examination:

- Outline Project Environmental Management Plan (oPEMP) [[REP5a-023](#)]
- Outline Underwater Sound Management Strategy (oUWSMS) [[REP5a-042](#)]
- Outline Vessel Traffic Management Plan (oVTMP) [[REP5a-031](#)]

BASELINE

9.2.4. The study areas used for the purposes of the fish and shellfish ecology assessment are illustrated in Figure 10 (taken from figure 10.1 of chapter 10 of the ES [[PD1-008](#)]). The application site is located wholly within International Council for the Exploration of the Sea (ICES) rectangle 36E6 which was used to define the local study area and was the primary focus of the assessment. This study area included a 15 kilometre (km) Zone of Influence (Zoi) for direct and indirect effects on fish and shellfish ecology and provided a regional context on baseline fish and shellfish populations. A wider study area was also identified which encompassed a 100km circular area around the application site to ensure impacts from noise and on migratory species of conservation importance, such as diadromous fish and basking shark, were considered.

Figure 10: Study area for fish and shellfish ecology (extract of figure 10.1 of [[PD1-008](#)])



- 9.2.5. A number of publicly available datasets and sources were used to characterise and describe the fish and shellfish resource within study area [REP3-016, table 10.5]. The applicant considered that the information derived from these sources was sufficient to enable a robust assessment of the impacts of the proposed development to be carried out and therefore site-specific baseline fish sampling surveys were not necessary. The applicant explained that this approach was discussed with stakeholders during the pre-application stage through the Expert Topic Group meeting which included representatives from the Marine Management Organisation (MMO) and Natural England (NE) as well as other interested marine stakeholders [REP3-016, paragraph 10.9]. In addition to the data sources identified, the applicant also explained that the assessment took into account the environmental information used to inform the Preliminary Environmental Impact Report (PEIR) for the Morgan and Morecambe Offshore Wind Farms Transmission Assets project (M&MTA).
- 9.2.6. The baseline data confirmed that within the local study area there are several commercially important species including plaice, cod, common sole, mackerel, herring and anglerfish as well as whiting and sandeels which are an important prey species for many kinds of fish, birds, and marine mammals. Within the wider study area there is also evidence of lobster, king and queen scallops, whelks and brown crab and the Irish Sea area also supports populations of elasmobranchs (that is sharks, skates and rays) with evidence of basking shark (which is of conservation importance) and thornback ray (which is of national importance).
- 9.2.7. Potential spawning and nursery grounds of sandeel, common sole, plaice, cod, whiting, and mackerel overlap with the study area [PD1-008, figures 10.2a to c and 10.3a to d) with the nearest herring spawning grounds being located approximately 44km northwest of the proposed development [PD1-008, figure 10.6].
- 9.2.8. No sites designated for either fish and shellfish interest or habitats/ species which are dependent on, or associated with, fish or shellfish overlap the application site. A number of designated sites are however within 50km of the application site, so there is potential for species listed within Annex II of the Habitats Directive to also pass through the study area from various rivers with associated Special Areas of Conservation (SACs) [REP3-016, paragraphs 10.111 and 10.112). Given the potential impacts of noise and suspended sediments associated with the proposed development these were therefore taken into account and assessed as part of the ES. Assessments of potential effects on site integrity were assessed within the applicants accompanying Report to Inform Appropriate Assessment (RIAA) [REP5-010] and Marine Conservation Zone Assessment Report [AS-004]. Our consideration of these is set out in chapter 22.
- 9.2.9. Key species and the principal receptors identified and taken forward as part of the fish and shellfish ecology assessment are identified within table 10.17 of the chapter 10 of the ES [REP3-016].

MITIGATION

- 9.2.10. The applicant incorporated what it described as embedded mitigation features into the design of the proposed development to reduce the effects of impacts. These are summarised in table 10.3 of chapter 10 of the ES [\[REP3-016\]](#).
- 9.2.11. The applicant did not propose or deem any additional mitigation measures necessary to reduce and avoid residual effects in relation to fish and shellfish ecology impacts.
- 9.2.12. The design parameters, which form the embedded mitigation measures relied upon by the applicant in carrying out its assessment, would be secured as commitments through requirement (R) 2 of schedule 2 of the draft Development Consent Order (dDCO) and condition 1 of the draft Deemed Marine Licence (dDML) in schedule 6 of the dDCO [\[REP6-002\]](#). Conditions 9 and 20 of the dDML require final versions of the oPEMP [\[REP5a-023\]](#) and oUWSMS [\[REP5a-042\]](#) to be submitted for approval of the MMO.

ASSESSMENT OF EFFECTS

- 9.2.13. The realistic worst-case scenarios used by the applicant in undertaking the fish and ecology assessment are set out in table 10.2 of chapter 10 of the ES [\[REP3-016\]](#).
- 9.2.14. The potential impacts identified and assessed by the applicant for each phase of the development differ slightly, with some being the same for all phases with others being unique to that particular phase. The potential impacts identified and assessed by the applicant (and for which phase) were as follows:
- permanent habitat loss (operation and maintenance phase only)
 - temporary habitat loss/ physical disturbance and increased suspended sediment concentration (SSCs) and sediment deposition (all phases)
 - remobilisation of existing contaminated sediments (all phases)
 - underwater noise and vibration (all phases)
 - interactions of EMF (operation and maintenance phase only)
 - barrier effects (all phases)
 - changes in fishing activity (all phases)
 - collision risk (all phases)
 - introduction of hard substrate (operation and maintenance phase only)
 - removal of hard substrate (decommissioning phase only)
- 9.2.15. A summary of the potential impacts assessed and the conclusions reached is provided in table 10.47 of chapter 10 of the ES [\[REP3-016\]](#), table 10.47].

Construction, operation and maintenance and decommissioning effects

Permanent habitat loss (operation and maintenance phase only)

- 9.2.16. The applicant explained that based on the worst-case scenario the total habitat loss due to the wind farm infrastructure such as wind turbine generators (WTGs), offshore substation platforms (OSPs), scour protection

and inter-array/ platform link cable protection would equate to approximately 0.51 square kilometres (km²). As it is not yet known which structures (if any) would remain in-situ at the time of decommissioning the applicant assumed for the purposes of this assessment that the areas of habitat loss would be permanent.

- 9.2.17. In respect of spawning grounds, the applicant explained that the benthic substrate within the application site is not suitable spawning habitat for herring and therefore the impact of habitat loss would result in no change for this species. Although the baseline data identified potential small areas of suitable habitat for sandeel in the southwest corner of the site, the applicant submitted that given the wider extent of spawning grounds across the study area and abundance of similar substrates elsewhere, any loss would be negligible. However, given the high sensitivity of sandeel, the potential effect of this impact was concluded to be 'minor adverse' for this species. For other fish species in the application site the applicant concluded that the effects would be 'negligible' given the relatively small area affected in comparison to the wider area [[REP3-016](#), paragraph 10.277].
- 9.2.18. For nursery grounds, molluscs and crustaceans, the applicant explained that although the nursery grounds of various species may overlap with the application site, any habitat loss would be confined to a limited area and would not affect the overall functioning of these broader nursery grounds. Furthermore, the total area of habitat loss would equate to around 0.6% of the application site and therefore this would result in a highly localised effect which the applicant considered would not be detectable in crustacean and mollusc populations either locally or regionally. The applicant therefore concluded that a not significant 'minor adverse' effect would be expected on nursery grounds, molluscs and crustaceans as a result of permanent habitat loss associated with the proposed development [[REP3-016](#), paragraphs 10.282, 10.285 and 10.288].
- 9.2.19. In respect of impacts on designated sites, the application site does not overlap with any designated sites and the nearest site that is designated for fish and shellfish species (Wyre Lune Marine Conservation Zone (MCZ)) is located 31km away. As a result, the applicant concluded that there would be no direct pathway or potential for likely significant effects on sites designated for fish and shellfish. The effect of this impact was therefore concluded to be that of 'no change' and so not significant [[REP3-016](#), paragraph 10.290].

Temporary habitat loss/ physical disturbance and increased suspended sediment concentration and sediment deposition (all phases)

- 9.2.20. The applicant considered that there was potential for direct impacts on fish and shellfish habitats and species due to physical disturbance and/ or habitat removal during seabed preparation, maintenance and decommissioning activities. Increases in suspended sediment concentration (SSC) as a result of physical disruption also have the potential to impair respiratory, filter feeding or reproductive functions and the disruption of migration/ spawning activity. Sediment deposition can also potentially affect the quality of

spawning and nursery habitats especially if it changes the characteristics of the seabed sediments.

- 9.2.21. The total footprint of seabed disturbance was anticipated to be around 2.4km² which represents approximately 2.8% of the total application site area [REP3-016, paragraph 10.120]. The area of potential disturbance was therefore considered to be small when considered in the context of the unaffected areas of the application site and very small when considered in the wider context of the eastern Irish Sea. The applicant submitted that the fish species identified and assessed have high levels of mobility and are therefore capable of navigating away from any temporary disturbance caused by construction, maintenance and decommissioning activities. Similarly, most crustaceans are relatively mobile and would generally be able to move away from areas of disturbance. However, small crabs and shrimps are less mobile, and molluscs are sessile, and so would be directly affected. Notwithstanding this the applicant argues that any disturbance would be temporary, localised and reversible.
- 9.2.22. As explained within chapter 15, the application site is predominantly composed of sand and fine sand and based on the sediment sizes, any finer suspended sediment is expected to extend no further than one spring tidal ellipse (10km) with other coarser sediments settling within a few hundred metres and up to around a kilometre away from the source of activity. Whilst there are spawning and nursery grounds of many species that overlap with the application site or which lie within one tidal ellipse (where sediments may be distributed), the applicant submits that the areas that would be impacted by increases in SSCs and deposition during construction/ decommissioning activities would be very small, relative to the size of the entire main nursery grounds which extend around much of the Irish, English and Scottish coasts. Furthermore, the applicant submitted that any increase in sediment loading would be relatively short-term, occurring intermittently, and would be localised in nature.
- 9.2.23. The applicant concluded that the impact of temporary habitat loss/ physical disturbance and increased SSCs and sediment during all phases of the development would have a not significant 'negligible adverse' effect in respect of impacts on all fish groups (pelagic, demersal, diadromous, elasmobranchs) and a not significant 'minor adverse' effect in respect of impacts on spawning grounds, nursery grounds, crustaceans and molluscs [REP3-016, tables 10.18 and 10.19].
- 9.2.24. In respect of impacts on designated sites, the applicant submitted that during the construction and decommissioning phases there would be no habitat loss or physical disturbance in designated sites for fish and shellfish species given the separation distance between the application site and those sites. This means there would be no direct pathway or potential for likely significant effects on sites designated for fish. Therefore, the applicant concluded that the effect of this impact would be that of 'no change' and so not significant [REP3-016, paragraph 10.147].

- 9.2.25. For the operation and maintenance phase, the applicant concluded that any SSC increases above background levels would be limited at the Fylde MCZ given its separation of at least 8km from the application site. The applicant concluded that the effect on designated sites would be 'minor adverse' and so not significant [[REP3-016](#), paragraph 10.177].

Remobilisation of existing contaminated sediments (all phases)

- 9.2.26. As reported within chapter 15, as sediment contamination levels across the application site were found to be low, the applicant considered the risk of adverse effects on fish and shellfish from the disturbance of contaminated sediment to also be low. This impact was therefore scoped out of any further assessment [[REP3-016](#), paragraph 10.179).

Underwater noise and vibration (all phases)

- 9.2.27. Pile driving activities associated with the installation of WTG and OSP foundations and the use of vessels and/ or cutting activities required to remove substructures were identified as having the potential to give rise to noise and vibration impacts. The potential impact of noise on different species of fish and shellfish may vary as each species have differing sensitivity to noise.
- 9.2.28. The applicant carried out noise modelling to assess the potential effects of underwater noise generated during construction and decommissioning activities and these are presented within appendix 11.1 of the ES [[REP4-013](#)]. The modelling assumes a worst-case scenario of sequential piling within a 24-hour period with maximum hammer energies scenario and using a stationary animal mode). The results are presented in table 10.25 [[REP3-016](#)] of the ES.
- 9.2.29. During the operation and maintenance phase, the applicant submitted that continuous noise associated with operation of the WTGs and transiting maintenance vessels would be greatly reduced when compared with that which would be experienced during the construction/ decommissioning phase. Therefore, whilst the applicant explained that the modelling identifies a potential for noise to impact on the most sensitive fish groups, this is considered to be overly conservative as it assumed a stationary fish and a stationary vessel, and so is a scenario that it considers is unlikely to occur in reality.
- 9.2.30. Having taken into account the embedded mitigation measures identified within the ES, the applicant therefore concluded that the impact of underwater noise and vibration during the construction and decommissioning phases would have a 'negligible adverse' effect on crustaceans and molluscs and so would not be significant. With respect to impacts on spawning grounds, nursery grounds and all fish groups (pelagic, demersal, diadromous, elasmobranchs) the applicant concluded that there would be a 'minor adverse' effect which would also not be significant [[REP3-016](#), table 10.29 and 10.47].

9.2.31. The applicant concluded that the effect of noise and vibration on all assessed fish and shellfish receptors during the operation and maintenance phase would be 'negligible' and not significant [[REP3-016](#), table 10.34 and 10.47].

9.2.32. In light of the separation distance between the proposed application site and designated sites for fish and shellfish species and a maximum Temporary Threshold Shift (TTS) impact range of 31km from the piling source, the applicant concluded that a 'minor adverse' effect on designated sites would be expected from underwater noise associated with the construction and decommissioning activities. During the operation and maintenance phase, the effect would be reduced and so was assessed to be 'negligible adverse' and so in all cases not significant [[REP3-016](#), paragraphs 10.255 and 10.299].

Interactions of electromagnetic fields (operation and maintenance phase only)

9.2.33. Energy produced by the WTGs would be transmitted through a network of inter-array and platform link cables that would connect to one another and to the OSPs. As the energy is transmitted, the cables emit low-energy EMF which have the potential to impact on fish and shellfish ecology receptors.

9.2.34. Based on the worst-case scenarios the applicant explained that a maximum of 70km of inter-array cables and 10km of platform link cables would be installed within the footprint of the site. These cables would transmit alternating current (AC) at 50 hertz (Hz), or cycles per second, introducing a weak electric field in the surrounding ocean.

9.2.35. The applicant explained that EMF has the potential to interfere with the navigation of sensitive migratory and pelagic species by affecting the speed and/ or course of their movements. Elasmobranchs are also known to be electrosensitive and magneto-sensitive and whilst the effects of EMF on shellfish are not well understood and can be highly variable depending on the species and life stage, studies have indicated that higher EMF strengths can attract certain species such as brown crab or reduce activity levels of crabs that inadvertently move into an area affected by EMF. Finally, whilst the applicant acknowledged that demersal species living on or close to the seafloor could also be exposed to potential EMF, the applicant explained that the demersal fish species identified in the study area do not possess electromagnetic receptors to detect EMF at 50Hz. Therefore, these species were not deemed sensitive to this stimulus [[REP3-016](#), paragraph 10.306].

9.2.36. To mitigate the potential effects of EMF the applicant explained that it proposes to bury cables wherever possible and that the target depth of burial would be 1.5 metres (m) below the seabed. Where burial is not suitable then cable protection would be used which would increase the distance between any fish and shellfish receptors and the EMF source thereby reducing the effects of EMF.

9.2.37. With the mitigation measures in place the applicant concluded that the impact of EMF during the operation and maintenance phase would have a

‘negligible adverse’ effect on demersal fish and ‘minor adverse’, not-significant effect on all other fish and shellfish receptors assessed (pelagic, diadromous, elasmobranchs, crustaceans and molluscs) [[REP3-016](#), table 10.35].

Barrier effects (all phases)

- 9.2.38. During construction and decommissioning activities, the applicant explained that underwater noise can lead to acoustic barrier effects that could potentially affect migratory/ diadromous species, mobile crustaceans and pelagic fish. During the operation and maintenance phase, EMF can also potentially affect the behaviour of migratory diadromous and pelagic species and also shellfish such as crustaceans and molluscs resulting in both decreased and increased levels of activity.
- 9.2.39. The applicant explained that whilst the baseline evidence demonstrates the potential presence of migratory species within the study area, any behavioural effects such as increased swim speed and deeper swimming as a result of the impulsive effects of noise would occur within tens of kilometres of the sound source and would be temporary and likely reduce with distance from source. Migratory fish would be able to utilise alternative routes in the wider area to avoid affected routes, although any impacts would likely be short-term in duration and localised. Although crustaceans would be less mobile, and therefore less able to move between habitat areas, the applicant explained that there is no evidence to suggest that sound alters the movements of migrating crustaceans and whilst mobile migratory, diadromous and pelagic species could move over areas where EMF might be detectable, in the wider context of the Irish Sea, it was not expected to cause any significant barrier effects.
- 9.2.40. During the operation and maintenance phase, the applicant considered that the barrier effects due to noise would be significantly less than those during construction and decommissioning activities as this would occur less frequently, such as when carrying out routine repairs and monitoring. Any impacts would therefore likely be less noisy and more localised both spatially and temporally than that experienced during the construction and decommissioning phases.
- 9.2.41. The applicant nevertheless concluded that for all phases of the development the impact of barrier effects on all fish and shellfish receptors, including designated sites, would have a ‘minor adverse’ effect or lower and so would not be significant [[REP3-016](#), table 10.30 and 10.47].

Changes in fishing activity (all phases)

- 9.2.42. As discussed in chapter 15 there is the potential for commercial fishing activity to be displaced from within the application site as a result of the activities associated with the proposed development. These effects would potentially be greatest during the construction and decommissioning phases as a result of the need to restrict access when installing and removing infrastructure such as WTGs, OSPs and cable and scour protection and the

laying and removal of inter-array cables. During the operation and maintenance phases, fishing activity was expected to return to some degree although there could be some minor displacement effects as result of a minor reduction in the area of available fishing grounds due to the presence of, and need to maintain, safe operating distances around infrastructure.

- 9.2.43. As described in chapter 8, the application site is not heavily fished compared to surrounding areas, with potting being the predominant fishing type identified based on the baseline evidence. Following mitigation, the applicant concluded that the effects in respect of loss of fishing grounds and the associated potential for displacement for any of the active fleets as a result of the proposed development would not give rise to significant adverse effects.
- 9.2.44. The applicant therefore concluded that for all phases of the development the impact on commercially targeted fish and shellfish stocks as a result of changes in fishing activity would have a 'minor adverse' effect and so would not be significant [[REP3-016](#), table 10.31 and paragraph 10.342].

Collision risk to basking shark (all phases)

- 9.2.45. The applicant explained that basking sharks have been observed in the study area, particularly off the west coast of Scotland and around the Isle of Man. Basking sharks have a high sensitivity to collision risk with vessels associated with the proposed development. Collision risk is therefore considered to be greatest during the construction and decommissioning phases and therefore represents the worst-case scenario given the higher number of vessels that could be on site at any one time. During the operation and maintenance phase, the potential risk would be the same, although the number of vessels would be lower in both number and frequency.
- 9.2.46. In order to reduce the risk of basking shark (and marine mammal) collisions and disturbance, within the outline Vessel Traffic Management Plan (oVTMP) [[REP5a-031](#), section 7.1] the applicant has stated that meetings would be undertaken with all vessel operators associated with the proposed development and that this would include adherence to an agreed Code of Conduct which would be based upon that set out in the outline version of the Project Environmental Management Plan (oPEMP) [[REP5a-023](#), section 6.2.2.2]. The applicant concluded that given the distribution of basking sharks in the study area, the potential for their interaction with the proposed development would be low. Conditions 9(1)(e) and (j) of the dDML within schedule 6 of the dDCO [[REP6-002](#)] require final versions of the oVTMP and oPEMP to be submitted for approval and so through their implementation would ensure the risks to basking sharks for all phases of the development would be minimised. Therefore the applicant concluded that the effect of collision risk on basking shark for all phases of the development would be 'minor adverse' and not significant [[REP3-016](#), paragraph 10.272 and table 10.47].

Introduction of hard substrate (operation and maintenance phase only)

- 9.2.47. The applicant explained that the introduction of man-made structures such as foundations and scour protection may become colonised by a variety of benthic invertebrate species and that this could potentially increase ecological diversity by serving as artificial reefs and act as fish aggregating devices. Based on the worst-case scenario of using gravity-based foundations, the applicant explained that the area of hard substrate within the application site and associated scour and cable protection would cover an area of around 0.6km². As these would remain in place for the lifetime of the development, the creation of hard substrate habitat has been assessed as being a permanent effect.
- 9.2.48. The applicant concluded that the presence of hard substrate would not affect the suitability of spawning grounds and have no effect on nursery grounds. However, taking into account the sensitivity and magnitude of these receptors, the effect of hard substrate on these receptors was concluded to be 'minor adverse' and so not significant [[REP3-016](#), paragraphs 10.328 and 10.330].
- 9.2.49. For all other fish receptors assessed (demersal fish, pelagic fish, diadromous fish and elasmobranchs) given the very small percentage of the application site that would be occupied by hard substrate, and even smaller proportion of the wider habitats in the Irish Sea, the applicant concluded that the effects would be 'negligible adverse' in all cases and so not significant [[REP3-016](#), paragraphs 10.332 and 10.334].
- 9.2.50. For crustaceans and molluscs, the introduction of hard substrate would be suitable for many crustacean species and for encrusting molluscs such as mussels. However, for other species such as burrowing bivalves, the loss of soft sand sediment and habitat in the footprint of the hard substrate would reduce the area of habitat available. However, when taken together, given the relatively small and localised area affected, the applicant concluded that a 'minor adverse' effect would be expected from introduced habitat and so not significant [[REP3-016](#), paragraph 10.336].
- 9.2.51. For designated sites, given the separation distance between the application site and sites designated for fish and shellfish species, the applicant concluded that introduced hard substrate would not create any new habitat in these sites. An effect significance of 'no change' was concluded in relation to impacts from introduced hard substrate associated with the proposed development [[REP3-016](#), paragraph 10.338].

Removal of hard substrate (decommissioning phase only)

- 9.2.52. The removal of hard infrastructure following the cessation and decommissioning of the proposed development would allow the baseline habitat to be returned to its predevelopment condition. However, should this occur then the removal of these structures would also result in the loss of species which may have colonised them during the development's lifetime. The applicant explained that given the scale of impact in the context of the

wider availability of similar habitats in the Irish Sea, effects would not be detectable within the populations of these species locally, or more regionally. Considering the sensitivity and magnitude of this effect, the applicant therefore concluded that the effect would be 'negligible' to 'minor adverse' and so not significant [REP3-016, paragraph 10.347].

Cumulative effects

- 9.2.53. Table 10.37 of chapter 10 of the ES [REP3-016] identified which project alone impacts the applicant considered had the potential for a cumulative effect on receptors and so were taken forward as part of the 'combined assessment'. For fish and shellfish ecology this included the following impacts:
- increased SSCs and sediment deposition (construction)
 - temporary habitat loss and disturbance (construction)
 - noise (and associated barrier effects) (construction and operation and maintenance)
 - permanent habitat loss (operation and maintenance)
 - introduction of hard substrate (operation and maintenance)
 - collision risk (construction)
- 9.2.54. Table 10.38 [REP3-016] set out the various plans and projects that the applicant considered as part of the 'all projects assessment'. This included plans and projects within a distance of 30km (extending to 50km for piling noise impacts) of the application site. The applicant considered this would provide a suitable scale upon which to assess regional effects at a detectable level.
- 9.2.55. For the 'combined assessment' the applicant concluded that the cumulative significance of effects would be of no greater significance than those concluded for either the proposed development or the M&MTA alone (that is 'negligible adverse' to 'minor adverse'). The combined effects would not therefore be significant [REP3-016, paragraphs 10.367; 10.371; 10.380; 10.382 and 10.385].
- 9.2.56. For the 'all projects assessment' the applicant acknowledged that activities associated with other developments/ projects within the study area could result in increased habitat loss, sediment disturbance and sediment plumes, noise and vibration, extent of hard substrate as well as an increased risk of collision from marine traffic. Whilst the applicant acknowledged there was the potential for some overlap and interaction between some of the identified projects and the proposed development, it concluded that the cumulative significance of these effects would be no greater than for the project alone. The cumulative effects would therefore not be significant [REP3-016, paragraphs 10.389; 10.393; 10.398; 10.416, 10.419, 10.424, 10.427 and 10.428].

9.3. ISSUES CONSIDERED DURING THE EXAMINATION

THE CASE FOR THE INTERESTED PARTIES

Natural England

- 9.3.1. NE [\[RR-061\]](#) raised concerns about the approach taken by the applicant in assessing impacts on fish as part of its noise modelling and cautioned against relying upon the methods within the draft Marine Mammal Mitigation Protocol (dMMMP) as a means of mitigating noise impacts on fish species. Additionally, NE suggested that underwater noise ranges and impact areas should be illustrated on contour maps to enhance understanding and recommended references be given to substantiate some of the statements and positions presented by the applicant in the ES. These issues were identified within its Risk and Issues Log as ‘yellow’ meaning it considered these issues unlikely to make a material difference to the outcome of the decision-making process.
- 9.3.2. The applicant confirmed [\[PD1-011\]](#) that the noise modelling had considered impacts on fish as static receptors and that the results presented within the ES in relation for fleeing receptors was presented for information only. Additionally, whilst the MMMP has the potential to mitigate effects for some sound sensitive fish species, the applicant stated that it had not relied upon the MMMP as mitigation for the purposes of the assessment. An additional figure showing the worst-case scenario piling noise impact ranges [\[PD1-008\]](#), figure 10.10] was also provided in response to NEs comments.
- 9.3.3. We asked NE [\[PD-011\]](#), EXQ2BEM2] whether it was satisfied with the baseline information presented within the ES or whether site specific surveys were required as stated by the National Federation of Fisherman’s Organisation and Welsh Fisherman’s Association (NFFO/ WFA) (see paragraph 9.3.7). NE responded [\[REP5-081\]](#) stating its remit regarding fish and shellfish ecology was in regard to any concerns that affect designated sites for which the level of detail supplied was considered adequate. Therefore, it offered no further comments. We also asked NE to update its Risk and Issues Log [\[PD-018\]](#), ExQ3BEM1] to take into account previous responses and information submitted by the applicant.
- 9.3.4. At the close of the examination the NE’s final Risk and Issues Log [\[REP6-052\]](#) confirmed that all matters in relation to fish and shellfish ecology were agreed or, where they were not agreed, NE considered that these issues did not make a material difference to the outcome of the decision making process.

Marine Management Organisation

- 9.3.5. The MMO [\[RR-047\]](#) stated it was content that all relevant impacts to fish and fisheries had been identified and assessed and confirmed there were no outstanding concerns in relation to shellfish. The MMO did not however support the applicant’s conclusions regarding the cumulative assessment, in particular regarding the potential impacts of noise on cod spawning areas which overlap with the study area. The MMO stated that it expected more

data sources to have been used in the assessment. In the absence of such data, it suggested that noise abatement systems (NAS) should be considered to reduce the disturbance range, and piling restrictions be put in place during the cod spawning season.

9.3.6. A signed statement of common ground (SoCG) was submitted at D6 [\[REP6-022\]](#). At the end of the examination the MMOs position, insofar as it relates to fish and shellfish ecology matters, was as follows:

- agreed relevant baseline information on shellfish species and identified species present within the area had been provided and that no further information was required [\[REP5a-066\]](#), paragraph 1.7.1]
- a condition imposing a piling restriction during the cod spawning season should be imposed on the face of the dDML and the drafting for any such condition had been agreed [\[REP5a-047\]](#), paragraph 2.3.2]
- to remove the requirement for a seasonal piling restriction further information on the NAS to be used, including modelling of the mitigated impact ranges, would be required. The MMO agreed that the final versions of the oUWSMS [\[REP5a-042\]](#) and oMMMP [\[REP6-019\]](#) could be used as a mechanism to change or remove the seasonal restriction [\[REP5a-047\]](#), paragraph 2.3.3 and 2.3.4]. Conditions 9(1)(i) and 20 of the dDML secures this within schedule 6 of the dDCO, which requires final versions of these outline plans to be submitted for approval

National Federation of Fisherman's Organisation and Welsh Fisherman's Association

9.3.7. The NFFO/ WFA [\[RR-059\]](#) stated they were concerned about the lack of contemporary and site-specific data presented in the fish and shellfish ecology assessment and considered there to be a lack of focus on key commercial species that have a range that overlaps with the development area, specifically shellfish. Although data from the ICES/ International Bottom Trawl Survey (IBTS) had been presented they considered this to be too coarse to characterise an accurate baseline. Furthermore, they considered the use of data taken from surveys to characterise sediment composition as the incorrect methodology for sampling fish and shellfish and that reliance on data from other wind farm projects should not be used to interpret impacts for this proposed development.

9.3.8. A signed SoCG was submitted at D5a [\[REP5a-034\]](#). This confirmed that all matters in relation to fish and shellfish ecology were agreed except in relation to the baseline data with the NFFO/ WFA continuing to have concerns about the lack of any site-specific fish surveys and therefore the robustness of the applicant's conclusions regarding the project-alone and cumulative effects of the proposed development. Whilst this was not agreed both parties confirmed that their different positions would have no material impact.

The Traditional and Sustainable Commercial Fishing Association

9.3.9. The Traditional and Sustainable Commercial Fishing Association (TSCFA) [\[RR-083\]](#) and [\[PD1-022\]](#) stated that heavy piling, noise and electric currents from the construction and operation of wind farms has led to a decline in fish

species and could affect the migration routes of sea bass. This could impact on its members businesses and way of life.

- 9.3.10. No further evidence or written representations were made by the TSCFA during the examination.

Isle of Man Government (Territorial Sea Committee)

- 9.3.11. The Isle of Man Government (Territorial Sea Committee) (IoMTSC) [RR-031] noted amendments had been made to the ES which it considered adequately covered issues it had raised during the pre-application stage. As a result, the IoMTSC offered no comments.
- 9.3.12. The IoMTSC attended our issue specific hearings and continued to hold discussions with the applicant throughout the examination period with updates on those discussions being provided principally through the various iterations of the SoCG.
- 9.3.13. The final SoCG [REP5a-037] confirmed the IoMTSC agreed with the applicant's position that adequate consultation and assessments in respect of fish and shellfish ecology had been carried out and that no significant effects were identified relevant to the Isle of Man waters in relation to fish and shellfish ecology.

ISSUES

- 9.3.14. By the close of the examination the applicant had largely agreed all matters with interested parties relating to fish and shellfish ecology. The key issues and matters that we consider important and relevant and/ or which were not resolved by the close of the examination and which we have reported on are as follows:
- adequacy of the baseline assessment data.
 - effects of noise and cod spawning seasonal restriction.

Adequacy of the baseline assessment data

- 9.3.15. The NFFO/ WFA considered insufficient data had been presented by the applicant and so did not agree with the applicant's conclusions regarding the project-alone and cumulative effects of the proposed development.
- 9.3.16. The applicant responded to the NFFO/ WFA's concerns [PD1-011, section 4.14] highlighting the sources and limitations of the information used to inform the baseline assessment and confirmed that the methodology had been subject to discussions and agreed with statutory bodies including the MMO and NE through Expert Topic Group meetings held during the pre-application stages.
- 9.3.17. In our first written questions [PD-011, 1BEM26] we asked the NFFO/ WFA for their views on the applicant's response and in particular what alternative approach or sources of data it considered should be used to provide the baseline. The NFFO/ WFA's response [REP4-072] did not identify or offer

any alternative sources of data and whilst they acknowledged the applicant's response, they maintained the data was not contemporary and so was considered insufficient to identify the distribution or population dynamics of key stocks that may be affected. As no such similar concerns had been raised by the MMO or NE, in our second written questions [[PD-015](#), ExQ2BEM2] we asked whether they were satisfied with the level of detail and baseline information used by the applicant.

- 9.3.18. The MMO [[REP5a-066](#), paragraph 1.7.4] confirmed that the applicant had included relevant baseline information and so in its view no further information was required. NE [[REP5-081](#)] commented that it was satisfied that the level of detail provided within the ES was adequate for the purposes of its remit and therefore had no further comments.

ExA's considerations on the adequacy of the baseline assessment data

- 9.3.19. Whilst we accept site specific surveys have not been undertaken, we acknowledge that the approach and datasets used by the applicant had been agreed with statutory parties and that they are content with the level of information presented. Furthermore, whilst the NFFO/ WFA's position is noted, the final SoCG confirmed that the disagreement on this matter is non-material.
- 9.3.20. Given this position, and having had regard to the evidence before us and the views of all parties, we are satisfied that the baseline information presented in the ES has a sufficient basis to allow robust conclusions on the proposed developments potential impacts to be made. We are therefore satisfied that the assessment meets the requirements of the EIA Regulations and is also in accordance with paragraphs 2.8.154 and 2.8.157 of NPS EN-3.

Effects of noise and cod spawning seasonal restriction

- 9.3.21. The underwater noise assessment included consideration of the potential impacts of unexploded ordnance (UXO) clearance at a high level as any UXO clearance would be subject to a separate marine licence application post-consent. During the examination we asked questions and sought clarification from the applicant regarding its assessment and consideration of noise and also sought views on the measures that would be adopted to minimise the potential impacts, in particular on cod spawning grounds.
- 9.3.22. The MMO raised concerns about the potential impacts of noise on cod spawning areas which overlap the study area and therefore requested seasonal piling restrictions and/ or additional underwater noise mitigation to demonstrate effects are sufficiently reduced.
- 9.3.23. The applicant responded to the MMO's relevant representation [[PD1-011](#), section 2.5] stating that it would continue to monitor the use of NAS but maintained that effects may be suitably mitigated through further design refinement and other embedded mitigation. Notwithstanding this, an additional condition (condition 20) was added to the dDML within schedule 6 of the dDCO at D1 [[REP6-002](#)] which would secure an UWSMS to be

submitted to and approved by the MMO following consultation with the statutory nature conservation bodies post-consent. The applicant stated the UWSMS would provide a mechanism for agreeing mitigation and any measures that may need to be considered in light of potential cumulative effects from activities associated with other projects on similar timescales. An outline version of the UWSMS (oUWSMS) was submitted at D2 [\[REP2-026\]](#).

- 9.3.24. Despite being invited to do so, the MMO did not attend any of our issue specific hearings. We therefore had to resort to seeking clarification and information on a number of matters through the use of Rule 17 letters [\[PD-017\]](#) and [\[PD-020\]](#) and our written questions [\[PD-011\]](#), [\[PD-015\]](#) and [\[PD-018\]](#). Responses to these requests and further written representations were made by the MMO at D1 [\[REP1-096\]](#), D2 [\[REP2-035\]](#), D3 [\[REP3-085\]](#), D4 [\[REP4-064\]](#), D5 [\[REP5-075\]](#) and D5a [\[REP5a-066\]](#).
- 9.3.25. The applicant provided responses to all MMO submissions and updated the oUWSMS at D4 [\[REP4-049\]](#), D5 [\[REP5-052\]](#) and D5a [\[REP5a-042\]](#). Condition 20 of the dDML within schedule 6 of the dDCO was also updated to address and respond to the points raised by the MMO and NE.
- 9.3.26. As discussed in chapter 14, the final UWSMS submitted into the examination sets out the measures to manage underwater noise effects, including the potential implementation of a seasonal piling restriction during the cod spawning season. The MMO has confirmed the mitigation measures outlined within the oUWSMS are satisfactory and agreed that any seasonal restriction should cover the peak cod spawning season which would be between 15 February to 31 March rather than a wider period. Whilst the MMO therefore agreed with the mitigation measures in the oUWSMS it maintains its view that the seasonal restriction should be secured on the face of the dDCO.
- 9.3.27. The applicant disagreed with the MMO and submitted that it is not necessary to include the restriction on the face of the dDCO as this is already committed to and secured within the oUWSMS which is secured by Condition 20(1). Notwithstanding this, the applicant has proposed wording (which has been agreed with NE and the MMO) regarding these measures and this was included within the applicant's final dDCO (Condition 20 subparagraphs (2) and (4) of the dDML within schedule 6) [\[REP6-002\]](#).

ExA's considerations on effects of noise and cod spawning seasonal restriction

- 9.3.28. We recognise the efforts of the applicant and the MMO to reach agreement on most matters before the close of the examination and note that there is overall agreement regarding the mitigation measures to manage noise impacts as contained within the oUWSMS. Whilst alternative views on the need for the seasonal piling restriction to be on the face of the dDCO remain, in our view its inclusion within the drafting of condition 20 of the dDML is appropriate and so have recommended that this be retained (see chapter 25). The retention of the drafting as proposed by the applicant, which has been agreed and is supported by the MMO and NE, would serve to provide more clarity and preciseness on the measures that may need to be

implemented as part of the final UWSMS to mitigate against any adverse effects. However, the drafting of condition 20 is such that it would also allow for piling to take place outside the peak cod spawning season if appropriate noise abatement systems are in place and have been agreed as part of the final UWSMS. Therefore, whilst the condition allows for some flexibility we are satisfied that the inclusion of this restriction within its wording on the face of the dDML is necessary and consistent with paragraph 4.1.16 of NPS EN-1 in that the condition is reasonable, enforceable and precise and so is justified. We therefore recommend that the condition is retained in the form set out in our recommended DCO (rDCO).

- 9.3.29. Having had regard to the evidence before us and the views of all parties, we consider a restriction on piling activities to avoid the cod spawning season as appropriate unless other noise abatement systems are agreed and employed as part of the final UWSMS. The UWSMS would therefore ensure works would be planned and measures secured to avoid or limit disturbance to fish as a consequence of noise and therefore complies with the requirements of 2.8.151 and NWMP policies NW-UWM-2 and NW-DIST-1.

9.4. CONCLUSIONS

- 9.4.1. We are satisfied that the applicant has undertaken suitable assessments to identify potential impacts and effects on fish and shellfish ecology receptors. This included a consideration of potential impacts on spawning grounds, nursery grounds, feeding grounds, over-wintering areas for crustaceans, migration routes and protected species and sites.
- 9.4.2. We are satisfied that the applicant has consulted appropriately with relevant statutory consultees and other stakeholders on the assessment methodologies and baseline data collection and has taken into account views on the potential avoidance, mitigation and compensation options which should be undertaken.
- 9.4.3. We are satisfied that the mitigation measures incorporated into the design of the development and secured as part of the dDCO would avoid, minimise and mitigate the impacts of the development on fish and shellfish receptors. The embedded mitigation measures would ensure activities are confined to the minimum areas required for those works. Where ground conditions allow, cables would be buried, or cable protection applied to minimise EMF effects. Furthermore, works would be planned, and measures secured to avoid or limit disturbance to fish as a consequence of noise from piling and construction activities unless other noise abatement systems have been agreed and employed as part of the final UWSMS. These would be secured through R2 of schedule 2 of the dDCO and conditions 2, 9 and 20 of the dDML within schedule 6 of the dDCO. We are content that the proposals and the proposed development meet the requirements of paragraph 5.4.35 of NPS EN-1 and paragraphs 2.8.147, 2.8.151 to 2.8.164 and 2.8.310 of NPS EN-3 and paragraph 2.11.13 of NPS EN-5.
- 9.4.4. Taking all the relevant documentation and evidence into account, we have no reason to disagree with the applicant's conclusions regarding the residual

effects of the proposed development. We therefore concur with the applicant that all project alone and cumulative residual effects would range from 'negligible adverse' to 'minor adverse' and would not be significant in EIA terms.

9.4.5. Consequently, we conclude that the effects of the proposed development on fish and shellfish ecology as a whole should be afforded a little negative weight in the planning balance.

9.4.6. In our view, the applicant's proposals and the proposed development would:

- comply with paragraph 2.8.154 of NPS EN-3 as the applicant has consulted appropriately with relevant statutory consultees and other stakeholders on the assessment methodologies, baseline data collection and considered views on the potential avoidance, mitigation and compensation options which should be undertaken
- meet the requirements of paragraphs 2.8.147 to 2.8.151 of NPS EN-3 and NWMP Plan Policies NW-FISH-3, NW-BIO-1, NW-UWN-2 and NW-DIST-1 as the applicant has carried out a suitable assessment that has identified the fish species that are the most likely receptors of impacts from the proposed development
- meet the requirements of paragraph 5.4.35 of NPS EN-1, paragraph 2.8.310 of NPS EN-3 and paragraph 2.11.13 of NPS EN-5 as we are satisfied that the embedded mitigation measures incorporated into the design of the development would avoid and mitigate the impacts of the development
- comply with paragraph 2.8.151 of NPS EN-3 and NWMP policies NW-UWN-2 and NW-DIST-1 by ensuring piling and construction works would be planned and measures secured to avoid or limit disturbance to fish as a consequence of noise

10. HUMAN HEALTH

10.1. INTRODUCTION

10.1.1. This chapter considers the effects of the proposed development on human health. Human health was not identified as a principal issue in our Rule 6 letter [\[PD-007\]](#) however it was nevertheless a matter that the applicant assessed as part of the environmental statement (ES) and to which we have had regard in our examination of the application.

10.1.2. In our consideration of human health, we have had regard to:

- the requirements of the Overarching National Policy Statement for Energy (NPS EN-1) in particular those set out within section 4.4 and the National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) notably paragraphs 2.9.44 to 2.9.58 and 2.10.11
- any matters prescribed in relation to the development
- any other important and relevant matters including the National Planning Policy Framework (the Framework) and the Planning Practice Guidance (PPG) 'Healthy and safe communities'

10.2. THE APPLICATION

10.2.1. The applicant's assessment in relation to impacts on human health was principally set out in chapter 19 of the ES [\[REP6-011\]](#) and its associated figures [\[APP-140\]](#). Other application documents that are relevant to this assessment include the Outline Skills and Employment Plan (oSEP) which was subject to discussions with stakeholders during the application with the final agreed version being submitted at deadline (D) 5 [\[REP5-040\]](#).

10.2.2. The assessment was informed by, and took into account, the findings and conclusions of other relevant topics and chapters of the ES. Those chapters relevant to human health considerations included:

- Chapter 8 'Marine Sediment and Water Quality' [\[REP2-010\]](#).
- Chapter 13 'Commercial Fisheries' [\[REP3-018\]](#).
- Chapter 14 'Shipping and Navigation' [\[REP3-020\]](#).
- Chapter 17 'Infrastructure and Other Users' [\[REP1-038\]](#).
- Chapter 18 'Seascape landscape and visual' [\[REP3-026\]](#).
- Chapter 20 'Socio-economics, tourism and recreation' [\[APP-057\]](#).
- Chapter 21 'Climate change' [\[REP6-013\]](#).

BASELINE

10.2.3. The local study area was defined as being the population of the local authority areas of Wyre, Fylde, West Lancashire, Blackpool and Sefton [\[REP6-011\]](#), paragraph 19.14]. These areas were selected as the representative areas onshore with the most likely affected views and the closest community populations for other determinants of health, such as leisure activities that could be impacted by the proposed development.

- 10.2.4. The applicant did not carry out any specific surveys in relation to health, but instead a number of existing data sources were used to inform the baseline assessment including local public health and census data [REP6-011, table 19.6]. To put into context the local health circumstances of the communities surrounding the proposed development, the applicant analysed statistics for the local study area using regional, national, and international averages as relevant comparators.
- 10.2.5. The baseline data indicated an ageing population within the local study area, with a larger proportion of people aged 50 and above compared with other age groups and the national average [REP6-011, plate 19.1]. Life and healthy life expectancy rates within the local study area were also shown to be largely worse than or similar to the national average with mortality rates across the area being significantly worse or similar to the national average [REP6-011, table 19.11]. The baseline data also showed that lifestyle and behavioural risk factors were similar or significantly better than the national average in several of the local authority areas, but this was mixed with some areas having higher hospital admission rates and rates of obesity in adults when compared with the regional and national average [REP6-011, table 19.12].

MITIGATION

- 10.2.6. The applicant incorporated what it describes as embedded mitigation features into the design of the proposed development to reduce the effects of impacts. For the purposes of this assessment the applicant relied upon the embedded mitigation measures that were identified and outlined for other topics and chapters of the ES (see paragraph 10.2.2). As the embedded mitigation measures and conclusions of those chapters are reported elsewhere, they are not repeated here.
- 10.2.7. The applicant did not propose or deem it necessary for any additional mitigation measures in relation to human health impacts.
- 10.2.8. The design parameters (which form the embedded mitigation measures relied upon by the applicant in carrying out its assessment) are secured as commitments through requirement (R) 2 of schedule 2 of the draft Development Consent Order (dDCO) and condition 1 of the draft Deemed Marine Licence (dDML) in schedule 6 of the dDCO. R12 of the dDCO requires a final Skills and Employment Plan (based on the oSEP [REP5-040]) to be submitted for approval by the relevant planning authority and to be implemented for the life of the development. The relevant planning authority would be that covering the area where the port or operations/ maintenance base is located.

ASSESSMENT OF EFFECTS

- 10.2.9. The applicant looked at the activities which may affect people's physical or mental health for all phases of the proposed development. The applicant focused on human health receptors living within the local study area (as defined in paragraph 10.2.3) and considered the effects for both the general

population and vulnerable groups. Human health implications associated with onshore activities relating to the use of port(s) were not assessed as no decision on which port(s) would be used to service the project has yet been made. The applicant stated the potential need for any separate health impact assessment would be reviewed upon selection of the port(s) and this would be likely to consider impacts such as those on housing, transport, air quality and noise, and impacts on health and social services. The outline Port Access and Transport Plan (oPATP) confirms a screening exercise would be undertaken to consider potential noise and air quality effects once a port has been identified and that this would be agreed with the Local Planning Authority / Highway Authority [[REP5-032](#), paragraphs 24 and 25]. R11 secures the final PATP which must be in accordance with oPATP.

- 10.2.10. The realistic worst-case scenarios used in undertaking the human health assessment were the same as those used within the topic specific chapters of the ES that have been used to inform the assessment (as identified within paragraph 10.2.6 above).
- 10.2.11. The potential impacts identified and assessed by the applicant (and for which phase) were as follows:
- Healthy lifestyle: physical activity and leisure (all phases).
 - Education: workforce upskilling (all phases).
 - Socio-economic status: employment and investment (all phases).
 - Environmental conditions: water (construction/ decommissioning phases only).
 - Environmental conditions: climate change (operation and maintenance phase only).
 - Safe and cohesive communities: community identity (operation and maintenance phase only).
 - Wider societal benefits (operation and maintenance phase only).
- 10.2.12. The applicant explained that impacts ‘Environmental conditions: climate change’ and ‘Safe and cohesive communities: community identity’ were not individually assessed as part of the construction/ decommissioning phases. This was because carbon emissions linked with shipping, the assembly/ disassembly of generating infrastructure and use/ disposal of materials with embodied carbon were not expected to be of a scale that could give rise to likely significant population health effects. These effects were therefore more generally considered within chapter 21 ‘Climate change’ of the ES [[REP6-013](#)] and the operational phase of the development and so were scoped out of the health assessment [[REP6-011](#), paragraphs 19.149 and 19.219].
- 10.2.13. Similarly, whilst visual changes during the construction/ decommissioning phases can affect mental health and wellbeing, the applicant considered the level of activity and changes above sea level were not expected to be of such a scale that could result in significant population health effects. Again, such effects were therefore more generally considered within chapter 18 ‘Seascape, landscape and visual impact’ of the ES [[REP3-026](#)] for the

operational phase and so were scoped out the health assessment [REP6-011, paragraphs 19.150 and 19.220].

- 10.2.14. A summary of the potential impacts and the conclusions reached in terms of the effects for each of the identified impacts was provided in table 19.20 of chapter 19 of the ES [REP6-011].

Construction, operation and maintenance, and decommissioning effects

Healthy lifestyle: physical activity and leisure

- 10.2.15. The applicant explained that the health benefits of recreational and leisure activities include physical activity as well as general wellbeing, cognitive and improved mental health. The applicant acknowledged that changes in vessel movements and disruption could affect marine and nearshore recreational activities such as sailing, fishing, diving, boat trips or water sports. Consequently, any disruption or disturbance to these factors could result in changes to levels of use which in turn affects the physical activity and wellbeing of affected populations.
- 10.2.16. The applicant's health assessment has been informed by the findings of chapters 14 'Shipping and navigation' [REP3-020] and 17 'Infrastructure and other users' [REP1-038] of the ES which conclude that the potential effects to recreational vessels and marine recreational activity would not be significant. The applicant considered that whilst most people in the local area might only occasionally use the affected marine recreational and leisure and opportunities, vulnerable groups could be more impacted by disruptions. However, during the construction and decommissioning phases, the applicant submitted that any disruptions would be temporary and would quickly reverse once those activities cease. During the operation and maintenance phase, effects would be longer-term but the applicant considered that they would be small scale and result in a very minor change in the quality of life for a very few people within the affected population.
- 10.2.17. The applicant concluded that for all phases of the development the physical and mental health effects due to disruption to marine and nearshore recreational and leisure activity opportunity would be 'negligible adverse' and not significant in EIA terms [REP6-011, paragraph 19.264]. No additional mitigation measures were therefore deemed necessary by the applicant beyond those already embedded and incorporated into the design of the development and so none were proposed.

Education: workforce upskilling

- 10.2.18. The applicant explained that educational attainment is associated with better health outcomes and plays an important role by shaping opportunities, employment and income. Access to training and employment opportunities, as well as the socio-economic benefits associated with employment, can therefore alleviate issues of deprivation and lead to improved living conditions and enable individuals to make healthier life choices.

- 10.2.19. The applicant acknowledged that the scale of new training and employment opportunities was not yet confirmed but did propose measures within the oSEP [\[REP5-040\]](#) that would seek to offer opportunities to underrepresented and vulnerable groups within local populations. These opportunities would vary with some being one-off and others being continuous and if taken up could benefit and help to indirectly address and narrow health inequalities within the affected local populations.
- 10.2.20. With the embedded mitigation measures identified and incorporated into the design of the proposed development, the applicant concluded that for all phases of the proposed development the potential benefits in terms of additional training and educational support would have a not-significant 'minor beneficial effect' [\[REP6-011\]](#), paragraph 19.265]. No additional mitigation measures were therefore deemed necessary by the applicant and so none were proposed.

Socio-economic status: employment and investment

- 10.2.21. The applicant explained that localised effects on income and employment as a result of job opportunities created by the development would result in increased spend and that these effects are likely to be associated with minor changes in morbidity and quality of life for a small minority of the population. The applicant considered that the potential benefits associated with increased income and employment, which are strongly correlated with better health outcomes, would therefore have a 'minor beneficial effect'. However, the applicant also acknowledged that, during some phases of the development, there would be potential adverse impacts on parts of the commercial fishing industry which could lead to effects in relation to job or income insecurity. Whilst these effects would be temporary and only affect a very small minority of the population the applicant concluded that this would have a 'minor adverse effect'.
- 10.2.22. Therefore, the applicant concluded that whilst there would be both beneficial and adverse effects on this determinant of health, in both cases the effects were assessed to not be significant in EIA terms [\[REP6-011\]](#), paragraph 19.266]. Consequently, no additional mitigation measures were deemed necessary by the applicant and so none were proposed.

Environmental conditions: water (construction/ decommissioning phases only)

- 10.2.23. During the construction and decommissioning phases, the applicant identified and assessed the potential risks to population health and coastal populations from potential changes in water quality because of contaminants, sediments and pollutants that could be mobilised and transmitted during site works/ activities.
- 10.2.24. The applicant explained that the health assessment had been informed by the findings of chapter 8 of the ES 'Marine sediment and water quality' [\[REP2-010\]](#) which concluded that all the potential impacts considered would result in either negligible or, at worst, minor adverse effects on water quality.

- 10.2.25. The applicant submitted that given the distance of the wind farm site offshore there would be no pathway for sediment transport to bathing waters that might be used by recreational users. Furthermore, through the adoption of good practice measures to avoid and contain any spills that could be harmful or reduce water quality, the risk of pollution or exposure to toxins that could have a population health implication would be reduced.
- 10.2.26. The applicant therefore concluded that with the embedded mitigation measures identified and incorporated into the design of the proposed development, the population health implications associated with any effects on water quality and as a result of potential increases in suspended sediment and marine pollution releases and spills would have a not-significant, 'negligible adverse effect' on coastal populations [REP6-011, paragraph 19.267]. Consequently, no additional mitigation measures were deemed necessary by the applicant and so none were proposed.

Environmental conditions: climate change (operation and maintenance phase only)

- 10.2.27. The applicant explained that renewable energy generation can contribute to avoiding adverse health effects associated with climate change impacts such as extreme temperatures, storms and flooding, infectious disease and food insecurity. In assessing the impacts and effects the applicant's assessment drew upon the findings of chapter 21 of the ES 'Climate change' [REP6-013] which found that the proposed development would contribute to the supply of renewable energy and therefore support the decarbonisation of the power sector and reduction in emissions.
- 10.2.28. The applicant stated that changes in health outcomes related to climate change were expected to be relatively small in the UK; however adverse effects of climate change disproportionately affect the most disadvantaged in society and can therefore widen health inequalities. Therefore, whilst the general population were generally less vulnerable and considered able to get support to cope with the effects of climate change, vulnerable groups within the population may be at greater risk due to low incomes or age making it harder to cope with heatwaves or flooding.
- 10.2.29. The applicant explained that whilst the proposed development would make a positive contribution to reducing emissions within the national energy sector emissions context, the scale of change would be small. The health effects were therefore considered likely to represent a very minor change in the risk of mortality and morbidity linked to a range of health determinants influenced by a changing climate for a small minority of the national population. Therefore, whilst the effects of the development were considered to be beneficial in direction, it would have a very limited effect on the global and national health baseline and so the significance of the population health effects was determined to be 'minor beneficial' and not significant [REP6-011, paragraph 19.192]. No additional mitigation measures were therefore identified or deemed necessary by the applicant.

Safe and cohesive communities: community identity (operation and maintenance phase only)

- 10.2.30. The applicant's health assessment was informed by the findings of chapters 18 'Seascape, landscape and visual impact assessment' [REP3-026] and 20 'Socio-economics, tourism and recreation' [APP-057] of the ES which found no significant effects in terms of tourism but which did identify significant visual effects from the proposed development within areas of the Fylde and Sefton coasts and localised 'major' to 'moderate adverse' effects on views at some locations along the coast.
- 10.2.31. During the construction and decommissioning phases, the applicant considered that views of vessels and the assembly/ disassembly of the generating infrastructure would not be of a scale that could give rise to significant population health effects and so were not assessed in detail. During the operation and maintenance phase, the applicant explained that the physical and visual presence of generating infrastructure had the potential to impact on community identity which could lead to effects on mental wellbeing and mental health. For example, views of the wind farm could have beneficial effects by reminding people of the employment opportunities and renewable electricity it creates but could also have adverse effects for those who feel the coastal setting would be adversely affected by the proposed development.
- 10.2.32. The applicant explained that the wind farm site would be located 30km offshore and so whilst views of the proposed development would be possible and long-term, for health, the proposed development was considered to represent a small scale visual change. The applicant concluded that the effects on mental health and wellbeing as a result of visual changes to the seascape and how populations feel about their communities would be both beneficial and adverse in effect with both being assessed to be 'minor' and not significant [REP6-011, paragraph 19.269]. In light of the conclusions reached, no additional mitigation measures or specific monitoring in relation to human health was identified or deemed necessary by the applicant.

Wider societal benefits (operation and maintenance phase only)

- 10.2.33. The electricity produced by the proposed development during its lifetime would contribute towards achieving energy security and support activities and technologies that support good health, facilitate healthcare services and which are required to generally improve quality of life, for example, required to cook and refrigerate food safely, to regulate the temperature and lighting of homes.
- 10.2.34. The applicant considered the general population to comprise members of the community that are in good physical and mental health and who have greater resources and so are generally less vulnerable to the costs of energy or to interruptions in supply. For those on lower incomes or who have fewer resources energy security, costs and interruptions in supply pose a greater risk, particularly for those which rely on heating/ cooling in response to extreme temperatures or which require access to healthcare services.

- 10.2.35. The applicant explained that the electricity produced by the proposed development would be the equivalent of that required to power half a million homes and whilst this is relatively small within the national energy generation context, the effects are likely to provide a minor reduction in risks for population mortality and morbidity by, for example, reducing excess winter deaths and improving standards of living and access to health-supporting infrastructure. The applicant submitted that these effects would be extended to a large minority of the national population, given the developments connection to the national grid, and therefore concluded that the population health effect for this determinant of health would be ‘moderate beneficial’ and significant [[REP6-011](#), paragraph 19.214].

Cumulative effects

- 10.2.36. Table 19.14 [[REP6-011](#)] confirmed that all impacts, with the exception of those relating to climate change and community identity during the construction/ decommissioning phases, were considered by the applicant as having the potential for a cumulative effect on receptors and so taken forward as part of the ‘combined assessment’.
- 10.2.37. Table 19.5 [[REP6-011](#)] set out the plans or projects that were taken forward as part of the ‘all projects assessment’. These included projects that the applicant considered could affect the same populations within the geographic areas where effects had been identified for the proposed development on its own. Those projects included the other offshore wind developments that are located off the coast of North West England, North Wales and the Isle of Man.
- 10.2.38. For the ‘combined assessment’ the applicant explained that there was very limited overlap in the individuals who may experience effects. Nevertheless, the applicant concluded that both projects had the potential for adverse effects on water quality and recreation, physical activity and mental health. However, for all phases and for each project, the assessment found each of these effects to be not significant. Consequently, the applicant considered the combined effects would also not be significant and therefore not significant in EIA terms [[REP6-011](#), table 19.16].
- 10.2.39. For the ‘all projects assessment’, the applicant considered the potential combined effect of all the identified offshore wind projects. With the exception of significant ‘moderate beneficial’ effects identified in terms of wider societal benefits, the applicant concluded that none of the effects assessed would be greater than that identified for the project alone (that is beneficial effects would be ‘minor beneficial’ and adverse effects would range from ‘negligible’ to ‘minor adverse’) [[REP6-011](#), table 19.16].

10.3. ISSUES CONSIDERED DURING THE EXAMINATION

THE CASE FOR INTERESTED PARTIES

Lancashire County Council

- 10.3.1. Lancashire County Council (LCC) did not make a relevant representation (RR) but it did confirm that the applicant had complied with its duties under sections 42, 47 and 48 of the PA2008 [[AoC-009](#)]. The Consultation Report [[REP1-002](#)] demonstrates that it engaged with the applicant during the pre-application stages.
- 10.3.2. A final statement of common ground (SoCG) between parties confirmed that all matters were agreed and that LCC did not wish to raise any concerns in regard to human health effects [[REP5a-045](#)].

Isle of Man Government (Territorial Sea Committee)

- 10.3.3. No specific representations or submissions were made by the Isle of Man Government (Territorial Sea Committee) (IoMTSC) in relation to human health matters during the examination. Within the final SoCG between parties the IoMTSC agreed with the applicant's position that the proposed development does not contribute to any significant human health effects [[REP5a-037](#)].

UK Health Security Agency

- 10.3.4. The UK Health Security Agency (UKHSA) [[RR-086](#)] stated it “...*is satisfied with the methodology used to undertake the environmental assessment. Following our review of the submitted documentation we are satisfied that the proposed development should not result in any significant adverse impact on public health*”.

Spirit Energy Production UK Limited and Chrysaor Resources (Irish Sea) Limited

- 10.3.5. RRs were submitted by both Spirit Energy Production UK Limited (Spirit) [[RR-077](#)] and Chrysaor Resources (Irish Sea) Limited (Harbour) [[RR-027](#)] and written representations (WR) which raised concerns about the impact and effects the proposed development would have on its operations and the risks this poses to the health and safety of its personnel. We have given consideration to these concerns within our broader assessment and consideration of the impacts and effects of the proposed development on oil and gas infrastructure and its operations (see chapters 11 and 19). Our conclusions on those matters are set out under the relevant topic specific chapters of this report and so are not repeated here.

Members of the public

- 10.3.6. Mr Alexander Cairns [[RR-002](#)], Ms Angela Esslinger [[RR-004](#)], Ms Louise Scupham [[RR-046](#)] and Ms Michelle Fare [[RR-052](#)] submitted RRs which included reference to concerns about impacts on human health, in particular relating to effects on mental health. These RRs related more specifically to

impacts associated with the proposed M&MTA project and so we considered that these RRs were not important or relevant matters in relation to the proposed development. As a result, we did not consider or examine these comments further. No further WR were made.

ISSUES

- 10.3.7. There was little discussion about the effects of the proposed development on human health. Nevertheless, the main important and relevant issue we have considered necessary for reporting relates to the applicant's conclusions in respect of the wider societal benefits of the proposed development. Our consideration of this is set out in the following section.

Wider societal benefits

- 10.3.8. The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) and NPS EN-1 require an ES to describe the aspects of the environment likely to be significantly affected by a proposed development. This includes an assessment to identify any adverse health impacts (including cumulative impacts) and to identify measures to avoid, reduce or compensate for these impacts as appropriate. We are cognisant that NPS EN-1 does not however stipulate a method for doing such an assessment.
- 10.3.9. The applicant's human health assessment was prepared following the Institute of Environmental Management and Assessment (IEMA) 2022 guidance and drew on qualitative and quantitative inputs from other EIA topic chapters. The methodology and approach used was discussed with stakeholders during the pre-application stage and no concerns or important and relevant matters were raised by IPs with regard to the applicant's approach during the examination. In fact, SoCGs agreed with LCC [\[REP5a-045\]](#) and IoMTSC [\[REP5a-037\]](#) confirm that those parties have no concerns with regard to human health effects. The UKHSA confirmed in its RR [\[RR-086\]](#) that it was satisfied with the methodology used and that the development should not result in any significant adverse impact on public health.
- 10.3.10. Whilst no specific issues were raised by IPs during the examination, we did ask questions and sought clarification from the applicant on matters relating to its human health assessment at issue specific hearing 2 [\[EV4-001 to EV4-009\]](#). This included questioning the methodology used and how a single conclusion in terms of overall effect for each impact had been derived when the assessment had considered the effects on two different receptor groups, that is the general population and vulnerable groups. We also sought clarification on how the applicant had determined a medium magnitude of impact for the wider societal benefits of the proposed development having regard to the definitions used within the assessment and whether this has resulted in an overestimation of the wider societal benefits of the development during its operational phase.

- 10.3.11. The applicant explained [[REP4-059](#), ID17] that the methodology for carrying out the human health assessment aligns with that within IEMA guidance which sets out the need to articulate sensitivity conclusions for both the general population and for a vulnerable group population. The IEMA guidance also advises that an assessment should reach a single overall conclusion which allows the consideration of health inequalities to be reflected. The applicant added that the methodology therefore follows a best practice approach and that this was agreed with the statutory public health stakeholders.
- 10.3.12. The applicant also explained [[REP4-059](#), ID18] that a medium magnitude of impact for wider societal effects had been determined based on an overall balance of the different scorings for each criterion that had been considered when reaching an overall conclusion. The applicant stated it is satisfied that this classification was correct and that the benefit derived from secure and affordable electricity should not be underestimated. It added that even if the view was taken that a small minority of the national population, rather than a large minority, would benefit from the electricity produced by the proposed development, then the overall effect would remain classified as a medium magnitude effect given the balance of other criteria. Consequently, in its view the conclusion reached on overall effect would remain unchanged as being moderate beneficial.

ExA's considerations on wider societal benefits

- 10.3.13. We are satisfied and agree that the energy produced by the proposed development would be beneficial and that the electricity generation capacity of the proposed development is nationally significant. Having considered the applicant's response to our questions/ queries [[REP4-059](#), ID17 and ID18] we are also content that the methodology used by the applicant is appropriate and that a medium magnitude of change is a suitable weighting to have been ascribed when considering the effects of the development in relation to wider societal effects.
- 10.3.14. As a result, we concur that the proposed development would result in a significant 'moderate beneficial' effect in terms of wider societal public health benefits and so ascribe this moderate positive weight in the planning balance.

10.4. CONCLUSIONS

- 10.4.1. In accordance with NPS EN-1 (NPS EN-1, paragraphs 4.4.4 to 4.4.6) we are satisfied that the applicant has considered the impacts of the proposed development and assessed its potential effects on different determinants of human health. This includes a consideration of potential cumulative effects as a consequence of impacts with other projects and plans that may affect people simultaneously.
- 10.4.2. We are satisfied that all relevant policies and requirements in relation to human health, including those within NPS EN-1 and EN-5, have been met and that the applicant's assessment meets the requirements of the EIA

Regulations and is also consistent with the advice contained within the Framework (NPPF, paragraphs 96 and 198) and that set out within the PPG.

- 10.4.3. The proposed development is located entirely offshore and a considerable distance from local populations that could be adversely affected by impacts such as noise and water pollution. We have assumed that the relevant pollution control and environmental regulatory regimes would be properly applied and enforced (NPS EN-1, paragraph 4.12.10) and agree with the applicant that effects on human health as a result of electromagnetic fields did not need to be assessed. Therefore, we are content that the assessment does not conflict with the requirements of NPS EN-5 (NPS EN-5, paragraphs 2.9.44 to 2.9.58) nor prevent or impede our ability to conclude on matters relating to this issue (NPS EN-5, paragraph 2.10.11).
- 10.4.4. Taking all the relevant documentation and evidence into account, we agree with the applicant's conclusions regarding the residual effects of the proposed development on determinants of human health.
- 10.4.5. With the exception of the wider societal effects, that is the provision of a source of electricity from a renewable source, we therefore concur that the project alone and cumulative effects of the development would have both beneficial and adverse effects which range from 'negligible' to 'minor' and not significant in EIA terms. We conclude taking these factors together those effects should be given neutral weight in the planning balance.
- 10.4.6. In respect of the wider societal effects, that is the provision of a source of electricity from a renewable source, we concur that the proposed development would result in significant 'moderate beneficial' public health benefits and so ascribe this moderate positive weight in the planning balance.
- 10.4.7. When considered together, we consider that the effects of the proposed development on human health should be afforded a little positive weight in the planning balance.
- 10.4.8. In our view, the applicant's proposals and the proposed development would:
- comply with paragraphs 4.3.1 to 4.3.4 and 4.4.4 and 4.4.5 of NPS EN-1 as the ES has assessed the effects for each element of the project, identifying any potential adverse health impacts, and identifying measures to avoid, reduce or compensate for these impacts as appropriate, including a consideration of cumulative effects where the impacts of more than one development may affect people simultaneously
 - comply with paragraph 4.4.6 of NPS EN-1 by providing opportunities, through the implementation of the oSEP, to mitigate indirect impacts by promoting local improvements to encourage health and wellbeing which include potential impacts on vulnerable groups within society
 - comply with paragraphs 4.4.7, 4.4.8 and 4.12.10 of NPS EN-1, as separate pollution control and environmental regulatory regimes along with requirements imposed on our recommended DCO would ensure measures are secured to address and mitigate any health effects

- comply with paragraph 5.12.17 of NPS EN-1 as measures have been identified to mitigate and minimise significant adverse impacts on health and quality of life from noise
- comply with paragraphs 2.10.11 and 2.10.12 of NPS EN-5 which require applicants to give consideration to the potential effects of EMF on health. This is because the proposed development is located entirely offshore and any cables associated with the development would either be placed on the seabed with cable protection or buried
- not be in conflict with or contrary to paragraphs 8b, 96, 198 and 199 of the Framework

11. INFRASTRUCTURE AND OTHER USERS

11.1. INTRODUCTION

- 11.1.1. This chapter considers the effects of the proposed development on other offshore infrastructure and other sea users. Other infrastructure and users considered by the applicant include recreational users, other offshore renewable developments, oil and gas activity, marine aggregate extraction, marine disposal sites, other subsea cables and carbon capture and storage (CCS) projects. Matters relating to commercial fisheries and shipping and navigation are addressed separately within chapters 8 and 19.
- 11.1.2. Infrastructure and other users were identified as a principal issue in the Rule 6 Letter [\[PD-007\]](#) (albeit we entitled this 'Other Offshore Infrastructure and Other Sea Users'). In our consideration of this issue, we have had regard to:
- the requirements of the Overarching National Policy Statement for Energy (NPS EN-1) and the NPS for Renewable Energy (NPS EN-3) as set out in Section 2.8 and Section 5.5
 - the relevant policies of the North West Inshore and North West Offshore Marine Plan (NWMP) notably policies NW-CO-1, NW-OG-1, NW-OG-2, NW-ACC-1 and NW-TR-1
 - any matters prescribed in relation to the development
 - any other important and relevant matters
 - Marine Guidance Note 654 (MGN654): Safety of Navigation: Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response
 - Oil and Gas Authority (OGA) Strategy 2021
 - Petroleum Act 1998

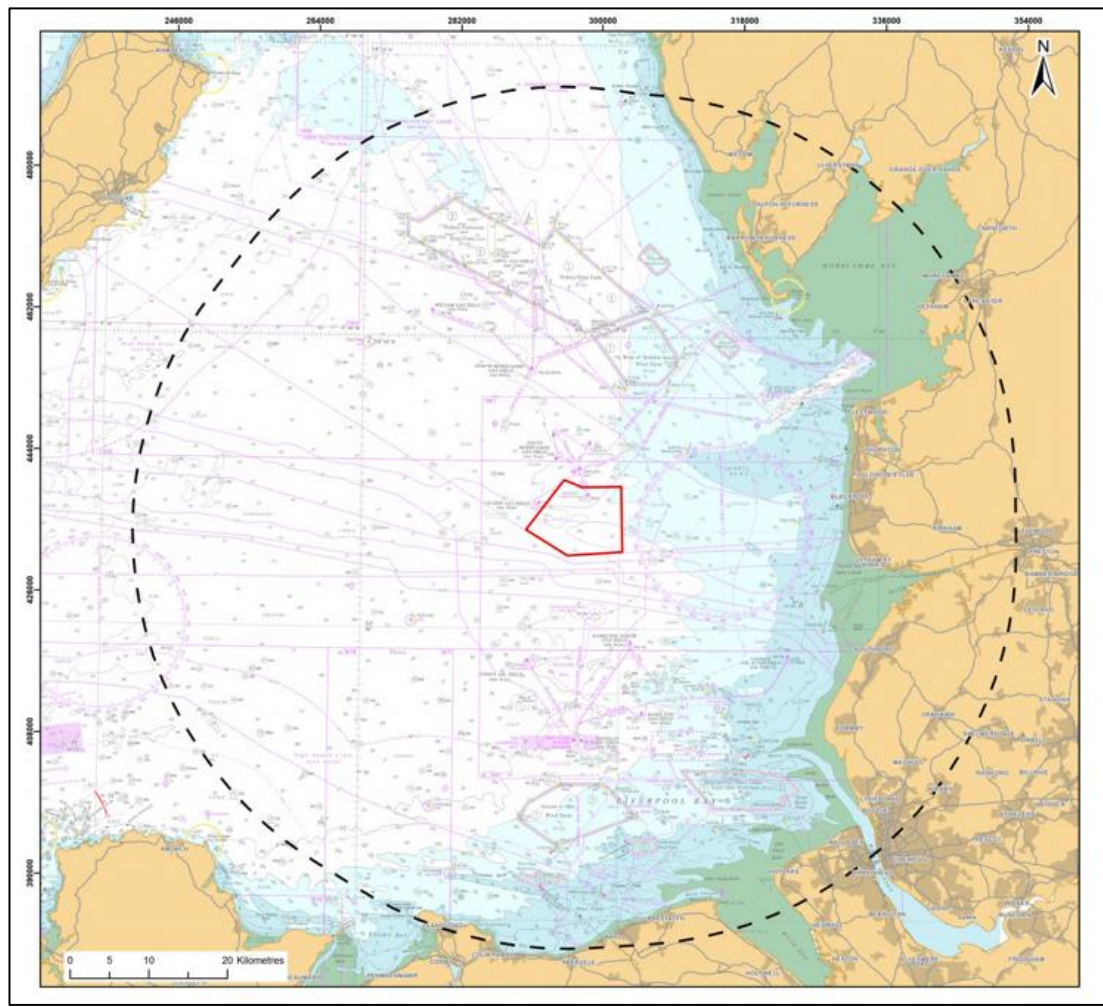
11.2. THE APPLICATION

- 11.2.1. The applicant's assessment of the potential impacts of the proposed development on other infrastructure and other sea users was set out in chapter 17 of the environmental statement (ES) [\[REP1-038\]](#) and is supported by a series of figures [\[APP-105\]](#). Additional information to support the chapter is contained within appendix 17.1 which contains a Helicopter Access Study [\[APP-081\]](#) and appendix 17.2 which contains a Radar Early Warning System Technical Report [\[REP3-034\]](#).
- 11.2.2. The applicant's assessment was also informed by, and took into account, the findings and conclusions of other relevant topics and chapters of the ES. Those chapter included:
- Chapter 13 'Commercial Fisheries' [\[REP3-018\]](#).
 - Chapter 14 'Shipping and Navigation' [\[REP3-020\]](#).
 - Chapter 16 'Civil and Military Aviation and Radar' [\[REP3-024\]](#).
 - Chapter 20 'Socio-economics, Tourism and Recreation' [\[APP-057\]](#).

BASELINE

- 11.2.3. The applicant's study area for the purposes of this assessment comprises the footprint of the application site and a 50 kilometre (km) Zone of Influence (Zol) around the application site. This is shown on Figure 11, which is taken from figure 17.1 of the ES [\[APP-105\]](#).
- 11.2.4. The applicant considered potential effects were likely to occur on activities associated with infrastructure and other users that overlap, influence or could be influenced by the proposed development. It added that direct effects were likely to occur where those activities overlap the footprint of the application site whilst indirect effects were likely to extend to those activities/ uses within the Zol [\[REP1-038\]](#), paragraph 17.12].

Figure 11: Study area for Other Infrastructure and other sea users assessment (extract taken from figure 17.1 of [\[APP-105\]](#))



- 11.2.5. To inform the assessment the applicant used a range of different sources to characterise the existing environment and activities that could be impacted by the proposed development. These sources included publicly available literature and information such as that contained within environmental impact assessments (EIA) and scoping reports as well as purchased data or information gained from the relevant companies or organisations who have

assets or who carry out activities within the study area. These data sources are identified and set out within table 17.5 of the ES [[REP1-038](#)].

- 11.2.6. The baseline information showed that the Irish Sea is host to numerous other offshore infrastructure and activities including existing and proposed offshore wind projects, oil and gas operations, shipping routes, aggregate and disposal sites and existing subsea cable infrastructure. Their locations relative to the proposed development are shown on figures 17.3 to 17.5 [[APP-105](#)].
- 11.2.7. A summary of the existing and proposed offshore wind projects and other operational activities is provided within the 'Relevant Planning History' section of chapter 1 of this report and so are not repeated here.
- 11.2.8. In addition to those activities, the baseline assessment also showed that an Agreement for Lease (AfL) and licences have been issued in connection with potential natural gas and carbon dioxide (CO₂) storage facilities within the eastern Irish Sea. One such proposal relates to the potential repurposing of former salt caverns for the storage of natural gas whilst another relates to the reuse and repurposing of former hydrocarbon reservoirs for the storage of CO₂ (known as the HyNet North West Project). The AfL and licence areas relating to these proposals are located 4km to north-west and 10km to the south of the proposed development respectively and so whilst located within the ZoI do not overlap the application site. An appraisal licence (CS010) which also relates to the potential storage of CO₂ within depleted gas fields does however partially overlap the application site [[APP-105](#), figure 17.3]. This appraisal licence has been issued to Spirit Energy Production UK Limited (Spirit) in connection with its proposed scheme known as the Morecambe Net Zero (MNZ) project.
- 11.2.9. Other activities within the ZoI include military practice and exercise areas (PEXAs) which are designated areas used for training and defence purposes by the Royal Navy, the Army, the Royal Air Force and the Ministry of Defence (MoD). No PEXAs overlap the application site itself. However, the application site does lie within Low Flying Area (LFA) 17 where fixed wing aircraft may operate as low as 250 feet or 76.2 metres above sea level to conduct low level flight training.
- 11.2.10. Finally, based on the data available and sources used, the applicant explained that there is little marine recreational activity in the application site given its distance offshore. Recreational vessels remain predominantly along the coast with the majority of recreational angling taking place within inshore waters. The data also suggested that there are low levels of recreational angling and diving taking place within the wider area and the application site [[REP1-039](#), section 17.5.7].

MITIGATION

- 11.2.11. The applicant explained that as part of its initial site selection process consideration was given to co-existence with other marine users and activities to avoid, where possible, impacts or overlap with activities. Having

selected the proposed application site, the applicant then incorporated what it described as embedded mitigation features into the design of the proposed development to further reduce potential effects. The embedded mitigation measures are summarised in table 17.3 of chapter 17 of the ES [\[REP1-038\]](#).

- 11.2.12. Additional mitigation consists of measures that have been identified to further reduce or eliminate predicted significant effects that exist after the application of embedded mitigation measures. In this case additional mitigation comprised co-existence agreements and protective provisions (PPs). During the examination, the applicant updated and modified its proposed PPs with the main changes being made to the provisions proposed in favour of the owner/ operators of the existing oil and gas infrastructure.
- 11.2.13. The design parameters (which form the embedded mitigation measures relied upon by the applicant in carrying out its assessment) would be secured as commitments through requirement (R) 2 of schedule 2 of the draft Development Consent Order (dDCO) and condition 1 of the draft Deemed Marine Licence (DML) in schedule 6 of the dDCO. The PPs would be secured by schedule 3 of the dDCO [\[REP6-002\]](#) and include provision for co-existence agreements to be established between the applicant and various operators. These agreements would encompass proximity arrangements, as well as co-ordinated plans for marine access and simultaneous operations. At the close of the examination, we were not aware of any co-existence agreements having been agreed and so have assumed that co-existence would be controlled through the PPs.

ASSESSMENT OF EFFECTS

- 11.2.14. The realistic worst-case scenarios used in undertaking the assessment for each phase of the proposed development are set out in table 17.2 of chapter 17 of the ES [\[REP1-038\]](#), table 17.2].
- 11.2.15. The applicant considered that impacts and effects from the proposed development would be the same or similar for all phases. These were:
- potential effects on or arising from other wind farms or renewable development
 - potential effects on oil and gas infrastructure and future exploration, including CCS
 - physical effects on subsea cables and pipelines
 - potential effects on disposal and aggregates site
 - potential effects on tourism and recreation
 - potential effects on MoD activities
- 11.2.16. A summary of the potential impact and effect conclusions is provided in table 17.23 of chapter 17 of the ES [\[REP1-038\]](#).

Construction and decommissioning effects

- 11.2.17. During the construction and decommissioning phases, the applicant acknowledged that increased vessel and air traffic movements associated with construction and decommissioning activities could indirectly impact on

several different existing offshore infrastructure operators and marine users. Examples include interaction and interference with operational and maintenance activities associated with the existing offshore wind farms located within the study area and conflict with vessels associated with existing marine disposal sites. As the application site overlaps with the Morecambe South and Calder gas fields, construction/ decommissioning activities could also impact on the existing oil and gas operations by restricting access, whilst increased shipping activities could conflict with those associated with those operations. The applicant also noted that any potential future exploration, drilling or installation of new oil and gas or CCS projects within licence blocks that overlap or surround the application site could also be limited by construction/ decommissioning activities.

- 11.2.18. Other potential impacts identified and assessed by the applicant included damage to existing subsea cables and pipelines as a result of dropped objects, seabed clearance activities, cable and foundation installation/ removal and the use of jack up vessels. Recreational vessels and military aircraft that may pass through the application site and airspace above could also be restricted due to construction/ decommissioning activities.
- 11.2.19. To reduce or avoid potential risks to the operations of other offshore users from increased vessel traffic and construction/ decommissioning activities, the applicant explained that safety zones would be established around wind turbine generators (WTGs) and offshore substation platform (OSP) sites. Notifications of planned activity would also be given as well as appropriate lighting, marking and charting of each infrastructure/ activity. The applicant also stated that separation buffer distances between WTGs/ OSP(s) and existing subsea cables/ pipelines and oil and gas infrastructure would be incorporated into the design and layout of the application site and that cable crossings would be minimised where possible to avoid impacts on existing assets. Where crossings cannot be avoided then the applicant explained that crossing and proximity agreements would be established with the relevant asset owner.
- 11.2.20. Having taken into account the embedded mitigation measures, with the exception of effects on existing oil and gas infrastructure during the construction phase only, the applicant concluded that all project-alone effects would have a 'minor adverse' effect or lower and so would not be significant in environmental impact assessment (EIA) terms [[REP1-038](#), table 17.23].
- 11.2.21. For effects on existing oil and gas operations the applicant explained that it had adopted a precautionary approach and assessed the impacts during the construction phase as being the same as those for the operation and maintenance phase (as set out below). Consequently, oil and gas operations may be affected as a result of access restrictions and increased vessel and helicopter activity associated with construction and installation of the proposed development. Having considered the embedded mitigation measures incorporated into the design of the development, the applicant concluded that the effect of these impacts during the construction phase would be 'moderate adverse' and so significant in EIA terms.

- 11.2.22. To reduce impacts on existing oil and gas infrastructure, the applicant proposed additional mitigation in the form of PPs in favour of the operator/ owners of that infrastructure. Those provisions would include the creation of exclusion/ buffer zones around oil and gas platforms that have an active helideck and around cables, pipelines and legacy wellheads that lie within the footprint of the application site. Within those buffer zones infrastructure and activities associated with the proposed development would be restricted unless otherwise agreed with the oil and gas operator. The buffers initially proposed comprised a 1.5 nautical mile (nm) buffer around the Calder, AP-1 and DP-1 platforms, 500 metre (m) buffers either side of existing subsea cable/ pipelines and a 100m buffer around each of the legacy and relief well top hole locations.
- 11.2.23. With the implementation of these PPs, the applicant concluded that the residual effects of construction activities on existing oil and gas infrastructure would be reduced to 'minor adverse' and so would not be significant in EIA terms [[REP1-038](#), table 17.23].
- 11.2.24. The applicant updated and modified its proposed PPs in response to representations. This included amending the proposed aviation buffer around the AP-1 and DP-1 platforms to encapsulate the CPC as a whole as well as the addition of a 2nm wide aviation corridor between the Calder platform and the CPC. The aviation corridor would allow flights to take place under instrument meteorological conditions (IMC). The applicant argued that this corridor (the aviation corridor) would enable night and IMC helicopter access to be maintained thereby further reducing the effects identified as a result of the proximity of the proposed WTGs to those platforms [[REP2-002](#) and [REP2-007](#)]. The updated PPs also included a compensation mechanism to cover any operational adjustments required due to residual lost flights should the aviation corridor not be able to be used. An additional 1nm wide marine corridor between the Calder platform and CPC was also added along with 1.5nm wide marine buffers around the CPC (in favour of Spirit) and 1nm marine buffer around the Calder platform (in favour of Chrysaor Resources (Irish Sea) Limited, hereinafter referred to as Harbour).
- 11.2.25. At deadline (D) 6 the applicant updated the PPs again to provide for a larger 3.76nm interim aviation buffer around the Calder platform and CPC until the cessation of production (COP) at those platforms occurred or until 1 January 2029, whichever comes first. At this point the applicant proposed that a smaller 1.5nm enduring aviation buffer would be retained which would ensure safe helicopter access can be maintained, albeit flights would be restricted to daytime and visual meteorological conditions (VMC) only. These revised provisions were designed to take into account the expected COP associated with the Morecambe Hub which Spirit had previously advised would be expected to take place in 2027 plus or minus (+/-) 2 years [[REP4-070](#), paragraph 2.47].
- 11.2.26. By the close of the examination the applicant's updated PPs proposed in favour of the existing oil and gas infrastructure owners/ operators can therefore be summarised as follows:

- a 3.76nm interim aviation buffer zone, free of WTGs and OSPs around the CPC and Calder platform until the COP occurs or 1 January 2029, whichever is sooner. After this date the buffer distance would reduce to that set out in b. below (the interim buffer zone)
- a 1.5nm enduring aviation buffer zone, free of WTGs and OSPs around the CPC and Calder platform (the enduring buffer zone)
- a 1.5nm marine buffer around the CPC and 1 nm marine buffer around the Calder platform, free of WTGs, OSPs and temporary surface infrastructure
- a 1.0nm wide marine corridor between the CPC and Calder platform, free of WTGs, OSPs and temporary surface infrastructure
- a protected zone 500m either side of relevant pipelines and cables, free of WTGs, OSPs and temporary surface infrastructure
- a 2.0nm wide aviation corridor between the CPC and Calder platforms, free of WTGs and OSPs
- a 100m buffer around each legacy and relief well tophole location
- a compensation mechanism to cover additional costs incurred due to residual lost flights should the aviation corridor not be able to be used

11.2.27. The full set of PPs proposed by the applicant is set out within schedule 3 of its final version of the dDCO [\[REP6-002\]](#) and do not alter the applicant's conclusions as set out in the ES and summarised in paragraph 11.2.23 above.

Operation and maintenance effects

11.2.28. Although vessel and air traffic movements were anticipated to be significantly less during this phase compared with the construction period, the applicant considered potential increases in movements related to the transiting of maintenance crews and equipment and/ or the carrying out of monitoring surveys could still indirectly affect other marine activities and users. The applicant also noted that the presence of WTGs and associated infrastructure during the lifetime of the proposed development could potentially obstruct and hinder search and rescue (SAR) helicopters responding to major accidents and incidents.

11.2.29. In assessing impacts on existing oil and gas operations, the applicant stated that it had assumed a worst-case scenario which took into account potential new Civil Aviation Authority (CAA) rules which, if implemented, could place restrictions on flights to and from helidecks that are situated within 3nm of a WTG. Should the new CAA rules come into force, flights would be restricted to the daytime and only permitted under visual flight rules (VFR) and VMC. Flights at night and being carried out under instrument flight rules (IFR) and IMC would therefore not be allowed unless the CAA agreed to a dispensation to these rules - known as an alternative means of compliance (AltMoC). An AltMoC allows flexibility in meeting regulatory requirements by different means to those specified, provided operators are able to demonstrate an acceptable level of safety and compliance with the law.

11.2.30. The applicant acknowledged and accepted that as a consequence of the proposed development and the restrictions potentially imposed by the new

CAA rules, helicopter access to the existing oil and gas platforms could be restricted during the night and IMC conditions. However, the applicant explained that the commercial air transport (CAT) helicopters used to access the oil and gas platforms are based at Blackpool airport and the opening hours of the airport are 07:00 hours to 21:00 hours and consequently any impacts would be greatest during the winter months when daylight hours are shorter. Having carried out an analysis of flight data between 2018 and 2022, the applicant submitted that the majority of flights to the platforms took place during the daytime and under VMC anyway with these accounting for 81.6% to 94.6% of flights in relation to the Calder platform and 85.8% to 94.6% of flights to the CPP-1 platform [[REP1-038](#), paragraph 17.137]. The applicant noted that access to the DP-1 platform (part of the CPC) would also be restricted if the new CAA rules came into effect; however, the applicant explained that this platform is only used during the day and under VMC already and only when access to the CPP-1 is not available due to existing wind limits/ restrictions. In a subsequent submission [[REP5-062](#), paragraph 6], the applicant stated that based on its analysis of the 10,022 flights made between 2018 and 2022, 92% (or 9,175) of those were day VMC flights and that of the remaining 8% of flights, that is night VMC and IMC flights and day IMC flights, 4% of those would be mitigated by the additional IMC aviation corridor it has proposed as part of the PPs.

- 11.2.31. In addition to the potential impacts on reduced access by helicopters, the applicant noted that the presence of WTGs and their rotating blades could also potentially be detected and impact on radar early warning systems (REWS) installed on oil and gas infrastructure. Potential impacts on the REWS are considered within chapter 19 of this report which deal with shipping and navigation and so are not considered further in this chapter.
- 11.2.32. Other impacts identified by the applicant included potential damage to third party subsea cables and pipelines during maintenance works such as the repair or reburial of cables and as a result of the use of jack up vessels when replacing components and above sea infrastructure. Such activities could also interact and interfere with recreational users and marine aggregate/disposal vessels and military aircraft that utilise the airspace within and around the application site.
- 11.2.33. Finally, the applicant also acknowledged that there would be the potential for energy yield effects (also known as wake loss effects or wake effects) on other existing operational offshore wind farms within the Irish Sea as a result of the operation of WTGs associated with the proposed development.
- 11.2.34. The applicant explained that vessel movements during the operational and maintenance phase would be significantly fewer than during the construction phase. Notwithstanding this, to mitigate any effects, advanced notification of any proposed maintenance works and activities, along with the location of any safety zones, would be communicated to other marine users. Engagement between other wind farm developers would also be carried out to coordinate activities, where possible, so as to reduce any effects. The final position and heights of WTGs/ OSP(s) and associated infrastructure would

also be appropriately charted, marked and lit so that other marine users and military aircraft could avoid and/ or adopt appropriate stand-offs when passing through or around the application site. WTGs would also be aligned in compliance with the requirements of MGN654 which would ensure that obstruction-free access is available for SAR helicopters.

- 11.2.35. As explained in paragraphs 11.2.21 to 11.2.25, to reduce impacts on existing oil and gas infrastructure, the applicant proposed additional mitigation in the form of PPs. These PPs were subsequently updated, and additional provisions added, during the course of the examination.
- 11.2.36. In terms of wake effects, the applicant explained that the nearest existing operational offshore wind farm to the proposed development is located approximately 12.9km away and so beyond the 7.5km criterion set by The Crown Estate (TCE) as part of the Round 4 licensing process. The applicant also noted the findings of a recent Frazer-Nash study which concluded that *“Beyond approximately 10km separation between wind farms, the TurbOPark model indicates a levelling off of total interaction loss with buffer distance. For separations much larger than 20km, farm-to-farm wake losses will become vanishingly small.”* [REP1-089, section 3.3]. As the proposed development sits at a greater distance than 10km from other wind farm sites the applicant therefore considered that the separation distance would minimise any potential for wake loss effects and consequently did not consider it necessary to carry out any specific assessment or provide any mitigation.
- 11.2.37. Except for effects on existing oil and gas infrastructure, having taken into account the embedded mitigation measures incorporated into the design of the proposals, the applicant concluded that all project-alone effects on other offshore infrastructure and users would be ‘minor adverse’ or lower and so not significant in EIA terms [REP1-038, table 17.23].
- 11.2.38. The applicant concluded that significant ‘moderate adverse’ effects on existing oil and gas infrastructure and operations would occur; however, following the implementation of the PPs [REP6-002, schedule 3] the residual effects would be reduced to ‘minor adverse’ and so would not be significant in EIA terms [REP1-038, table 17.23].

Cumulative effects

- 11.2.39. Table 17.19 of chapter 17 of the ES [REP3-024] identified which project-alone impacts the applicant considered had the potential for a cumulative effect and so were taken forward in the ‘combined assessment’. In this case the applicant considered that there was a potential for cumulative effects associated with the residual effects from impacts on other offshore wind farms, existing oil and gas infrastructure and on tourism and recreational users and MoD activities [REP1-038].
- 11.2.40. Table 17.20 [REP1-038, table 17.20] sets out the various projects considered for the ‘all projects assessment’ which included developments that fall within the study area of the Irish Sea.

- 11.2.41. For the ‘combined assessment’ the applicant concluded the combined cumulative impacts would be of no greater significance than those assessed for either the proposed development or the M&MTA on their own. The combined residual effects would therefore be ‘negligible’ to ‘minor adverse’ for all impacts and so not significant in EIA terms [[REP1-038](#), table 17.23].
- 11.2.42. For the ‘all projects’ scenario the applicant similarly concluded that for all impacts the residual effects would be ‘minor adverse’ or lower and therefore no greater than those concluded for the project-alone assessment. Therefore, the applicant considered those effects not to be significant in EIA terms and so no additional mitigation was deemed necessary [[REP1-038](#), table 17.23].

11.3. ISSUES CONSIDERED DURING THE EXAMINATION

THE CASE FOR THE INTERESTED PARTIES

Ørsted IPs

- 11.3.1. As explained in chapter 1 (paragraph 1.4.20) Ørsted operates a number of offshore wind projects in the Irish Sea with individual relevant representations (RRs) being registered in connection with each of those interests [[RR-008](#), [RR-014](#), [RR-056](#), [RR-088](#), [RR-089](#), [RR-093](#)]. The Ørsted IPs RRs raised concerns about the proposed development in regard to impacts on shipping and navigation, ecology and aviation as well as the effects of wake loss on those existing projects.
- 11.3.2. The Ørsted IPs concerns relating to shipping and navigation, ecology and aviation are discussed in other chapters of this report and so are not considered here.
- 11.3.3. A key concern expressed by the Ørsted IPs was that the proposed development would interfere with the wind speed and/ or its direction affecting the energy yield of its assets (both individually and with other proposed offshore wind farms (OWFs) in the area) through wake effects. The Ørsted IPs argued that the wake effects of the proposed development would have a material impact on the energy yield of its assets which, if unmitigated, would affect the future viability of those assets.
- 11.3.4. At the close of the examination disagreement remained between the parties on a number of matters. This included the interpretation of government policy as set out in the NPSs and whether the applicant should have carried out a wake loss assessment and proposed mitigation and compensation to address wake effects. The Ørsted IPs stated that the predicted level of impact from wake effects as evidenced by its own assessment [[REP3-112](#)] could materially impact the future viability of projects and that this does not conform to the long-established policy objective of co-existence. In its response to our second written question [[REP5-093](#), Appendix 2] the Ørsted IPs set out the data and assumptions it used to calculate the impacts of the proposed development on its assets. We have summarised this information

in Table 4 and, using this data, calculated the potential reduction in energy yield for each asset in terms of gigawatt hour (GWh) loss per annum.

Table 4: Assumptions used in analysis of impacts of wake loss (taken from Ørsted IPs response to ExQ2 [REP5-093, Appendix 2])

Windfarm	Estimated electricity production per annum (GWh)	% AEP reduction per annum Project-alone effect	% AEP reduction per annum Cumulative effect	Estimated electricity production per annum taking into account project alone % AEP reduction (GWh)	Estimated electricity production per annum taking into account cumulative % AEP reduction (GWh)
Barrow	272	1.37%	3.09%	268.3	263.6
West of Duddon Sands	1476.9	1.01%	3.86%	1462.0	1419.9
Walney Phase 1	626.4	0.53%	3.78%	623.1	602.7
Walney Phase 2	709	0.32%	3.69%	706.7	682.8
Walney Phase 3	1299	0.40%	4.13%	1293.8	1245.4
Walney Phase 4	1299	0.56%	5.21%	1291.7	1231.3
Burbo Bank	252	0.46%	1.63%	250.8	247.9
Burbo Bank Extension	896.2	0.45%	1.85%	892.2	879.6
TOTAL	6830.5			6788.6	6573.2
Reduction in GWh per annum				-41.9	-257.3

11.3.5. In the absence of any such assessment the Ørsted IPs insisted that wake loss should be incorporated into the final design of the proposed development to mitigate its adverse effects and that a requirement should be imposed on the face of the dDCO which would require the applicant to address wake loss [[REP6-065](#)].

11.3.6. A combined Statement of Common Ground (SoCG) between the applicant and the Ørsted IPs was submitted at D6 [[REP6-028](#)] which confirmed a number of matters remained unagreed.

Spirit Energy Production UK Limited

11.3.7. Spirit Energy UK Limited (Spirit) [[RR-077](#) and [PD1-021](#)] stated that it did not object to the principle of offshore wind development but was concerned that the location of the proposed development would give rise to serious safety and operational impacts on its operations. Similar to the concerns raised by Harbour in paragraph 11.3.15, Spirit were particularly concerned about impacts on helicopter access and shipping and navigation but also potential implications in respect to future plans to transition and use the Morecambe Hub gas fields for CO₂ storage as part of the MNZ.

11.3.8. Spirit engaged the services of an aviation consultancy AviateQ International Limited (AviateQ) to provide technical advice on the applicant's proposals: AviateQ also liaised with the operator of the helicopters (NHV) that Spirit uses to fly to its assets. Having reviewed the applicant's proposals Spirit stated that its primary concern was the proposed 1.5nm aviation buffer between the potential siting of WTGs and the CPC and Calder platform helidecks. Spirit considered the proposed buffer distance to be inadequate for the purposes of ensuring safe helicopter arrivals and departures to and from (and between) those assets. It was concerned that the impact of reduced access would have significant implications for the safe operation of those assets and its personnel and therefore its ability to comply with health and safety regulatory requirements. More specifically, it was concerned that reduced access and flight restrictions would result in shorter working times available to carry out scheduled maintenance works; the need to carry out additional trips to complete work and the inability to downman and safely evacuate personnel using helicopters in both emergency and non-emergency situations.

11.3.9. Spirit initially submitted that the only way to address these concerns was to increase the buffer distance proposed to 3.3nm as this would be the minimum unobstructed airspace required to enable helicopters to operate safely in all conditions. It also stated that it would require 500m buffers to be provided either side of previously located pipelines within the footprint of the application site and also a minimum 100m to remain clear of WTGs around legacy exploration and appraisal wells which have been abandoned within the site in order to ensure these can continue to be monitored safely.

11.3.10. Spirit made further written submissions [[REP1-113](#) to [REP1-116](#)] which advised that, having had regard to technical advice from AviateQ and NHV, when operating under VFR at least 1.9nm of unobstructed airspace would be

required between WTGs and any active helideck, not 1.5nm as proposed by the applicant. For flights under IFR, the buffer would need to be increased from the 3.3nm originally cited in its RR to 3.9nm.

- 11.3.11. Further submissions were made by Spirit during the examination [[REP2-042](#), [REP3-102](#), [REP4-069](#), [REP4-070](#), [REP5-089](#), [REP5a-077](#), [REP6-058](#)] as well as the joint statement with Harbour [[REP3-101](#)] and responses to our first and second written questions [[REP3-103](#) and [REP5-090](#)].
- 11.3.12. A response to our third written questions and proposed alternative PPs was also provided at D5a [[REP5a-076](#)].
- 11.3.13. At D6 Spirit did not submit a Summary and Signposting Document as we had requested in our Rule 6 letter [[PD-007](#)] but did provide a response to our Rule 17 letter [[REP6-057](#)] and a written submission responding to the D5a submissions [[REP6-058](#)] and updated PPs [[REP6-059](#)].
- 11.3.14. A signed SoCG between the applicant and Spirit was submitted into the examination before it closed [[AS-019](#)] and based on this document, and the submissions made during the course of the examination, the final position of Spirit can be summarised as follows:
- Spirit contends that the proposed development does not comply with NPS EN-3 as it poses an intolerable risk to safety and adverse effects on viability and safety of offshore infrastructure. The proposal would therefore be contrary to paragraphs 2.8.342 to 2.8.348 as well as paragraphs 2.5.2 and 2.8.261 to 2.8.262
 - Spirit considers that the applicant has not appropriately characterised the baseline environment including the nature of Spirit's current operations
 - agreement could not be reached on the drafting of PPs or terms of a co-existence agreement within the timeframe of the examination
 - in relation to the proposed buffers, Spirit considers:
 - an aviation buffer of 3.76nm is required around each of the AP-1 and DP-1 platforms (that form part of the CPC) and the DP-6 and DP-8 platforms
 - a marine buffer of 1.5nm is required around each of the AP-1 and DP-1 platforms and a 1nm corridor between the Calder platform and the AP-1 platform
 - the proposed 2nm wide aviation corridor is not effective mitigation for the impacts identified by Spirit
 - a 1nm buffer is required around each legacy well and 500m buffers are required around existing cables and pipelines
 - Spirit disagrees with the applicant's proposed backstop date of 1 January 2029 to define the date by which the interim aviation buffer would reduce to the enduring buffer distance. If this backstop date were to be applied it would impact on current operations, decommissioning and the future MNZ proposals
 - Spirit does not agree to a cap on the undertaker's liability in respect of compensation during the decommissioning phase

Chrysaor Resources (Irish Sea) Limited

- 11.3.15. Chrysaor Resources (Irish Sea) Limited (hereinafter referred to as Harbour) [\[RR-027\]](#) was concerned that the proposed proximity of WTGs to its Calder platform would restrict helicopter access impacting on production and maintenance operations, its ability to downman and evacuate personnel from the platform and impact upon subsequent decommissioning activities. Concerns were also raised regarding potential detrimental impacts affecting marine operations, platform communications and mutually exclusive simultaneous operations such as piling and diving operations.
- 11.3.16. Harbour submitted a written representation [\[REP1-102\]](#) which expanded upon the concerns raised in its RR. This advised that it expected production from the Calder gas fields to continue during the construction and operation phases of the proposed development and that it was committed to finding solutions that would allow the co-existence of the two operations. However, as Spirit was the operator of the Calder gas fields and the Calder platform on behalf of Harbour, Harbour advised it would rely upon Spirit to make submissions and comments about any operational effects and potential mitigations.
- 11.3.17. Further submissions were made by Harbour during the examination [\[REP3-104\]](#) and [\[REP4-071\]](#) which included a joint statement from Harbour and Spirit [\[REP3-101\]](#) advising that both parties would look to provide comments and amendments to the applicant's PPs at D4. Responses were also provided to our first and second written questions [\[REP3-105\]](#) and [\[REP5-091\]](#) and at D5a Harbour submitted its proposed alternative PPs into the examination [\[REP5a-078\]](#) to [\[REP5a-081\]](#).
- 11.3.18. Explanatory notes on its proposed alternate PPs [\[REP6-060\]](#) to [\[REP6-063\]](#) and a signed SoCG between the applicant and Harbour were submitted before the close of the examination [\[AS-018\]](#). Based on these documents the final position of Harbour can be summarised as follows:
- Consultation and discussions between parties has been constructive and there is agreement on the relevant national planning policy context and baseline information presented in the ES.
 - Agreement could not be reached on the drafting of PPs or the terms of a co-existence agreement within the timeframe of the examination.
 - An interim aviation buffer of 3.76nm is required around the Calder platform and CPC until COP. At this point the interim aviation buffer could be reduced to an enduring buffer distance of 1.9nm as this is the minimum distance required around a helideck to allow day VMC landing under any wind direction.
 - Harbour disagrees with the applicant's proposed backstop date of 1 January 2029 to define the date by which the interim aviation buffer would reduce to the enduring buffer distance. If this backstop date were to be applied whilst the Calder field was still in production this would cause a significant adverse impact on safety.
 - A 1nm marine buffer zone around the Calder platform and a 1nm wide corridor between the Calder platform and the CPC was acceptable. It was

also agreed a 500m buffer either side of pipelines and cables was acceptable to Harbour in respect of the decommissioning of the Calder field, subject to confirmation by Spirit in respect of the production phase.

- It was agreed the PPs should provide for a cap on the undertaker's liability in respect of compensation during the decommissioning phase; however there was disagreement on the amount proposed. Harbour's position was that this should be £22,000,000 not £3,000,000 as the applicant proposed in its final dDCO [REP6-002].
- It was agreed that despite the impairment to the effectiveness of the REWS, operations at the Calder field during the decommissioning phase would not be at significantly greater risk of allision by passing vessels. During the production phase any requirements and views in respect to marine access were deferred to Spirit.

Scottish Power Renewables (WoDS) Ltd

11.3.19. Scottish Power Renewables (WoDS) Ltd [RR-076] registered as an IP stating that, due to the DCO boundary, it had an interest in matters relating to environmental impact, wake loss assumptions, shipping and navigation, and SAR. Scottish Power Renewables (WoDS) Ltd interests related to the existing West of Duddon Sands Offshore Wind Farm which is a joint venture between them and Morecambe Wind Limited.

11.3.20. No further representations or submissions were made by Scottish Power Renewables (WoDS) Ltd during the examination. However, as indicated in paragraph 1.4.20, Morecambe Wind Limited (which is a joint owner of the West of Duddon Sands Offshore Wind Farm) is one of the Ørsted IPs and so the issues and concerns raised reflect those of the Ørsted IPs, and so we have had regard to these more generally in our consideration of those representations.

Civil Aviation Authority

11.3.21. The Civil Aviation Authority (CAA) did not submit a RR and so were not an IP in the examination. However, as set out in paragraph 1.4.18, we did write to the CAA [OD-012] to make them aware of the examination timetable and invited them to respond to written questions [PD-011, 1CAR5, 1CAR7] [PD-015, 2CAR4] [PD-018, 3CAR2, 3CAR3, 3DCO1] and attend issue specific hearing 3 (ISH3) which focused on matters relating to other sea users and aviation [EV5-001 to EV5-007].

11.3.22. The CAA provided responses to our written questions [REP3-075, REP5-073 and REP5a-064] and attended ISH3. We have had regard to those responses in our consideration of the application.

ISSUES

11.3.23. The issues we consider important and relevant to our consideration of effects on infrastructure and other users and which we have reported upon are:

- effects on other operational offshore wind farm projects
- effects on existing oil and gas infrastructure

- effects on future carbon capture and storage proposals
- effects on other offshore activities including disposal and aggregate sites, telecommunication cables and marine recreational users

Effects on other operational offshore wind farm projects

- 11.3.24. Paragraph 2.8.197 of NPS EN-3 states “*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 effects of the proposed development on such existing or permitted infrastructure or activities*”.
- 11.3.25. Throughout this examination, there has been general agreement that the phrase “*existing operational offshore infrastructure*” in paragraph 2.8.197 of NPS EN-3 can be understood to include other offshore wind generation projects. Consequently, the requirements outlined in that provision may be applicable when assessing the impacts of new offshore wind farms.
- 11.3.26. In this case, the applicant argued that the provisions of paragraph 2.8.197 of NPS EN-3 do not apply as it considered the proposed development not to be “close” to the Ørsted IPs’ assets. As a result, the applicant argued an assessment of the potential wake effects of the development on those assets was not necessary. To support this position the applicant relied upon its compliance with the separation distances established in TCE leasing process and the findings of the Frazer-Nash study (see paragraph 11.2.36).
- 11.3.27. The Ørsted IPs have contested this position throughout the examination and argued that paragraph 2.8.197 of NPS EN-3 does apply as the proposed development has the potential to affect the other operational OWFs. A substantial portfolio of academic evidence was submitted into the examination by the Ørsted IPs which it argued supports its position that material wake effects can occur at farm-to-farm separation distances in excess of the distances between its assets and the proposed development [[REP1-104](#) to [REP1-109](#)]. See also Table 1: Existing OWFs in vicinity of application site in chapter 1 of this report for the distances. The Ørsted IPs argued that a bespoke assessment of potential wake effects should have therefore been carried out by the applicant and potential mitigation strategies for the design and layout of the proposed development identified to address those effects. It argued that the applicant’s failure to have properly engaged and taken into account the concerns about wake loss during the pre-application and examination stages, and its omission to assess, account for and address these effects through mitigation, were a failure of its obligations to comply with the requirements of the NPS-EN3 and the Marine Plan which require applicants to work collaboratively with other developers and sea users on co-existence/ co-location.
- 11.3.28. In addition to the above, the Ørsted IPs also argued that, as the applicant had failed to consider the impact of wake loss effects, its environmental assessment was inaccurate and failed to meet the requirements of the EIA

Regulations as it did not accurately reflect a realistic worst-case scenario in terms of net greenhouse gas (GHG) emissions.

- 11.3.29. As the applicant had not carried out its own wake effects assessment, the Ørsted IPs submitted its own Wake Impact Assessment Report (WIA) into the examination [REP3-112]. The WIA contained the results of preliminary modelling that had been carried out which indicated that the project-alone effects of the proposed development on its assets would result in a reduction of energy yield ranging between 0.32% (at the least impacted development) to 1.37% (at the most impacted development) Annual Energy Production ("AEP") [REP3-112, table 5-4]. It also suggested that the cumulative effects of the proposed development and that of the other Round 4 leasing offshore wind farms (OWFs) currently being proposed in the eastern Irish Sea would result in a reduction in AEP of between 1.63% to 5.21%. Whilst the WIA did not form part of the applicant's application or ES, the applicant and all IPs have nevertheless had an opportunity to review and provide comments on this document during the examination.
- 11.3.30. We explored and sought the views of the applicant and the Ørsted IPs on the interpretation of NPS policy and the findings and implications of the WIA through our first written questions [PD-011]. This was also discussed at ISH3 [EV5-006 and EV5-007] where, when discussing the WIA, the applicant confirmed that it *"does not argue with the substantive content of it"* [REP4-059, point 23] and also subsequently stated that, had it been required to carry out its own wake effect assessment, it *"does not consider that any assessment it might carry out would be significantly different to that produced by the Ørsted IPs.."* [REP5-060, paragraph 17]. Whilst the applicant maintained its position that it did not consider it necessary to carry out or submit its own wake effects assessment, it did however update its GHG assessment [REP4-062] to take into account the effects identified within the WIA.

ExA's considerations in relation to effects on other operational offshore wind farm projects

- 11.3.31. We have reviewed all the submissions and evidence provided by both parties in respect of this issue. This includes comments and discussions at the issue specific hearings, the responses from all parties to our written questions and the information contained within Table 1 of this report which relates to the separation distances between the proposed development and the other existing offshore wind farms. Whilst we note the applicant's position that the proposed development adheres to the TCE's siting criteria for new offshore wind farm development, it also accepted and confirmed that wake effects could occur and has not disputed the potential level of effect in terms of AEP loss as identified within the WIA. Consequently, the potential for wake effects to occur is not in contention and, as the applicant has accepted that effects could occur, we are of the view that the applicant should have therefore carried out its own wake effects assessment as part of its application. As no such assessment was undertaken, in that regard we consider the applicant to have failed to comply fully with the requirements of paragraph 2.8.197 of NPS EN-3.

- 11.3.32. Notwithstanding the above, a wake effects assessment has nevertheless been submitted into the examination and all parties have had an opportunity to review and make comments upon its findings. We note that the AEP figures within the WIA [REP3-112, table 5-4] have been calculated based on WTGs with an assumed rotor diameter of 236m but also include a sensitivity test based on WTGs with a rotor diameter of 276m [REP3-112, table 5-5]. According to the results of this sensitivity test, the WIA found that wake losses would be reduced when using the larger turbine [REP3-112, Conclusions, point 6].
- 11.3.33. The smallest WTG proposed and assessed by the applicant would have a rotor diameter of 260m with its largest WTG measuring 280m. Therefore, the smallest WTGs proposed by the applicant are larger than the smallest WTGs used in the WIA assessment and so, based on the information contained within the WIA, theoretically the actual wake losses experienced could potentially be lower than the assessed 0.32% to 1.37% if the applicant's smallest WTGs were to be installed. If the applicant were to install its largest WTGs, then the wake losses experienced could be comparable to those identified for the largest WTGs assessed within the WIA [REP3-112, table 5-5] and therefore lower still. The final WTG size would be determined post-consent, and we accept other factors such as distance and layout can influence wake loss outcomes. We accept the predicted wake loss figures within the WIA are indicative only; however, as the applicant has not challenged the figures, we are satisfied that the WIA is a reasonable proxy upon which the potential effects of wake loss can be assessed.
- 11.3.34. As set out in Table 4 above, on the basis of the figures and evidence before us, the project alone effects of the proposed development could result in a potential loss of between 0.32% to 1.37% AEP to the existing Ørsted IPs assets which equates to an overall reduction of the energy produced by the existing OWFs of 41.9GWh per annum. When considering the cumulative effects this could equate to an estimated reduction of around 257.3GWh per annum. Whilst these potential reduction figures are highly precautionary, when balancing this potential reduction in energy production against the total energy that could be produced by the proposed development both alone (approximately 2,450GWh per annum) or cumulatively with that of the other Round 4 projects, we are satisfied that the overall benefits in terms of renewable energy production significantly outweigh any negative impacts.
- 11.3.35. Furthermore, although we consider the applicant to have failed to demonstrate best efforts were taken to minimise negative effects through engagement with the Ørsted IPs, (which is contrary to the spirit of paragraphs 2.8.200, 2.8.261 and 2.8.344 of NPS EN-3) overall we are satisfied that the applicant has sought to minimise effects to other users through its site selection process and has complied with paragraph 2.8.345 of NPS EN-3. We acknowledge that not all effects can be fully mitigated, particularly those related to wake effects. In our view, further measures - such as requiring the applicant to increase the separation distance between the proposed development and the adjacent offshore wind farm - would have a disproportionately negative impact on overall energy production and

carbon reduction benefits. This would outweigh any minimal reduction in losses or effects on the Ørsted IPs projects. Similarly, we consider there is no need to require the applicant to consider further mitigation, such as the imposition of a requirement like that imposed on the Awel y Môr decision when finalising its proposed design and layout. We also note the much closer proximity of the Awel y Môr proposal to the existing Gwynt y Môr OWF, and thus the likelihood for greater wake effects.

- 11.3.36. We are also not persuaded that the estimated reductions in energy yield would affect the future viability of the existing OWF projects as is claimed by the Ørsted IPs. Some of the existing projects have been in operation for a number of years already and whilst the Ørsted IPs have argued some of those projects are not time limited, and so the impact of wake effects would endure and could affect future decisions about the continuation of those projects, we do not accept this position. For example, whilst we note the consent for the Barrow OWF may not be time limited, the marine licence which allows for the maintenance of that asset is. Therefore, in order for this project to continue to operate beyond the current licence end date of 2030, a new marine licence would need to be obtained. In light of the *C G Fry & Son Limited vs Secretary of State for Housing, Communities and Local Government* [2024] EWCA Civ 730 judgment, we sought views on whether any new marine licence would be likely to require a Habitats Regulations Assessment (HRA) to be carried out given the location of this OWF [PD-025, 200I.1]. The Ørsted IPs [REP5-093, page 3] responded stating that it considered no such assessment would be required whilst the applicant disagreed [REP5-070, page 56]. Both NE [REP5-081, page 12] and the MMO [REP5-075, page 10] responded advising that in their view a new or varied marine licence could trigger the requirement for a HRA but advised that the likelihood of consent or approval being obtained would depend on the nature of the licence being sought. The MMO, who is responsible for issuing any such licence, added that each case would need to be considered “... on a case-by-case basis and therefore we cannot pre-determine the likelihood of a licence being extended or granted” [REP5-075, page 10].
- 11.3.37. Based on these responses and given the uncertainty surrounding whether a new marine licence or consent to extend the lifespan of the existing Ørsted IPs assets would be granted, we are not persuaded that wake loss effects alone would impact the viability or future decision-making for those projects. In our view, this is just one of several factors that offshore wind developers must take into account when planning new developments or deciding whether to repower or extend the life of existing projects. Therefore, we do not consider paragraph 2.8.347 of NPS EN-3 to be engaged.
- 11.3.38. Overall, whilst we are satisfied the applicant has adequately assessed and addressed the potential impacts of the proposed development on most other offshore infrastructure and activities, in our view it failed to demonstrate that best efforts and opportunities have been taken to resolve and minimise the negative effects of wake loss through engagement with affected interested parties (IPs) or through proper assessment. For the reasons set out above the applicant has therefore failed to demonstrate full compliance with all

aspects and requirements of NPS EN-1, NPS EN-3 and policy NW-CO-1 of the NWMP Plan which require applicants to work collaboratively with other developers and sea users on co-existence/ co-location. We therefore consider the applicant's non-compliance with these policies and its failure to have properly assessed and given consideration to the effects of the proposed development to other existing operational OWF(s) with the view to trying to reduce any harm should be afforded little negative weight in the planning balance.

Effects on existing oil and gas infrastructure

- 11.3.39. Concerns were raised regarding the potential risk of collision/ allision from increased vessel traffic and effects on marine radar systems and to the safety of oil and gas platforms. The effects of the proposed development to the safety of oil and gas platforms in relation to shipping and navigation (REWS and allision risk) are considered within chapter 19 of this report and so not covered here. However, Harbour did confirm that it was largely content with the marine buffer distances and PPs identified by the applicant but considered that these should be expanded to include reasonable restrictions in respect of placement of temporary surface infrastructure [[REP1-102](#), section 3.1].
- 11.3.40. As noted by Spirit [[REP4-070](#), paragraph 2.47], COP is due to take place in 2027 plus or minus (+/-) 2 years. The applicant has provided two Gantt charts [[REP1-086](#)] which show that the installation of foundations associated with the proposed development would not take place until quarter (Q) 2 of 2028. These also show that OSPs and WTGs would not be installed until Q3 of 2028 and Q2 of 2029 respectively. Although we note that Spirit has stated that it is seeking to extend the life of the existing oil and gas infrastructure into the 2030s, as discussed in paragraphs 11.3.47 onwards, we have no evidence that it has found any further reserves or the ability to extend current production beyond 2029 or, given the early stage of the MNZ proposals, whether the platforms are required or even capable of being retained to support that proposal given their age. Therefore, in the absence of any such evidence we have assumed that COP will take place in 2029 and so after this point any priority in terms of restrictions imposed through the PPs should move in favour of the proposed development rather than the oil and gas industry.
- 11.3.41. The issue of safe helicopter access for landing on and, in particular, for take-off from existing oil and gas platforms was a significant concern raised by both Spirit and Harbour throughout the examination.
- 11.3.42. At D3 Spirit stated that whilst the additional aviation corridor proposed by the applicant was noted, it considered this insufficient to address its concerns about access to the platforms. However, it did acknowledge that whilst disagreement remained between the parties regarding the minimum distances required to ensure safe access can be achieved, it accepted that there may be scope to marginally reduce the 3.9nm buffer distance it had originally stated would be required to 3.76nm [[REP3-102](#), paragraph 3.14].

- 11.3.43. Spirit attended our issue specific hearings (ISH) ISH1 [[EV3-005](#) and [EV3-006](#)], ISH3 [[EV5-002](#) to [EV5-007](#)] and ISH4 [[EV6-001](#) to [EV6-005](#)] during which we sought clarification from all parties on their respective positions, the effects identified and suitability of the applicant's proposed mitigation. Despite Spirit and Harbour having previously made commitments to liaise with the applicant and to prepare alternative PPs to those put forward by the applicant, it was disappointing and clear to us from the responses received that very little progress had been made between the parties to resolve matters. We therefore urged the parties to hold discussions and technical meetings as soon as possible and for evidence of those meetings (in the form minutes of any technical meetings) and for PPs in favour of each party to be submitted into the examination [[EV7-006](#), AP No.22]. Post hearing submissions made by Spirit [[REP4-070](#)] confirmed that those discussions would continue but that its concerns remained unresolved and despite our request, no draft protective provisions were submitted by Harbour or Spirit at D4.
- 11.3.44. Given the concerns raised by the IPs, in our second round of written questions [[PD-015](#)] we sought views upon, and asked for the drafting of, a potential additional requirement (on a 'without prejudice' basis) that would prevent development taking place within proximity to the platforms until decommissioning activities would no longer represent an impediment to construction of the proposed development [[PD-015](#), ExQ2DCO2]. We also sought clarification on whether a minimum a distance of 1.9nm would be sufficient to ensure safe access to platforms under daytime VMC conditions as had been suggested in an earlier submission made by Spirit [[REP1-116](#), paragraph 2.22.1].
- 11.3.45. At D5 Spirit [[REP5-090](#), ExQ2CAR5] stated that until such time the platforms have been decommissioned, a buffer of 3.76nm around the platforms would be "*required for the safety of its operations*" to ensure access could be achieved in all conditions including after dark and when flying usings instruments. Drafting for a potential additional requirement to secure this was provided [[REP5-090](#), 2DCO2]. It was also confirmed that a buffer distance of 1.9nm would be the minimum acceptable requirement for safe landing and take-off in daytime VMC, however, this would still prevent operations taking place after dark in VMC [[REP5-090](#), ExQ2CAR5].
- 11.3.46. At D5a [[REP5a-076](#)] alternative PPs were submitted into the examination by Spirit which set out the distances it considered would be required to protect all of its affected assets from the proposed development. At D6 Spirit did not submit a Summary and Signposting Document as we requested in our Rule 6 letter but did make a written submission [[REP6-058](#)] which whilst summarising its position on a number of issues, also contained new information and evidence that had not previously been shared with the applicant or entered into the examination. Although the applicant provided a response to this submission before the close of the examination [[AS-023](#)], given the very limited time available to the applicant and us to scrutinise the information contained within Spirit's final submission [[REP6-058](#)] we have been unable to give this as much consideration as we would have liked in

our evaluation of the application. If the Secretary of State (SoS) therefore intends to fully rely upon the information contained within Spirit's final submission [\[REP6-058\]](#) when making their decision, then the SoS should be satisfied that the weight and consideration given to this submission in the decision-making process does not lead to procedural or fairness issues, particularly as it contains new evidence and information that may not have been thoroughly examined due to the limited time remaining in the examination period. Therefore, if necessary, the SoS may wish to seek the views of the applicant and other relevant parties on this submission so that their respective positions and views can be properly considered.

ExA's considerations in relation to effects on existing oil and gas infrastructure

- 11.3.47. During the examination, Spirit and the applicant have each provided evidence from their respective helicopter and aviation experts regarding the potential impacts to existing helicopter access to the oil and gas platforms and the minimum distances required for safe helicopter operations (examples being [\[REP1-116\]](#), [\[REP2-031\]](#) to [\[REP2-033\]](#), [\[REP3-071\]](#), [\[REP3-102\]](#), [\[REP5-063\]](#) [\[REP5-064\]](#) [\[REP6-058\]](#)). The applicant has taken steps to seek to address the concerns raised through the inclusion of an additional IMC aviation corridor and by updating its PPs during the examination. The revised PPs, submitted at the close of the examination within the applicant's final dDCO [\[REP6-002\]](#), include the establishment of a larger interim aviation buffer of 3.76nm which would ensure unrestricted access to the platforms is maintained until COP or until 1 January 2029, whichever comes first. At that point the applicant proposes reducing the aviation buffer to 1.5nm which would be an enduring buffer that would thereafter remain in place. The applicant submits that this enduring buffer would allow the proposed development to be constructed and therefore facilitate co-existence albeit it accepts that the enduring buffer would still limit helicopter access to daytime VMC only but maintains that this distance remains adequate for safe operations.
- 11.3.48. We note Spirit's position that it considers an aviation buffer of 3.76nm is needed as it considers anything less would impact and place restrictions on its existing operations. However, Spirit also confirmed that if WTGs were to be erected within the application site and flights were to be restricted to day VMC conditions only, then a distance of 1.9nm would be an acceptable safe distance to enable helicopter access to be achieved [\[REP5-090\]](#), ExQ2CAR5].
- 11.3.49. Having had regard to all submissions and evidence presented, especially those in respect to safety, we have concluded that a balanced and pragmatic approach is required particularly bearing in mind the expected COP of the oil and gas facilities in the near future. This is because if the developable area of the application site were to be permanently constrained by the 3.76nm buffer, as requested by the Spirit and Harbour, then much of the application site would be incapable of being developed – see our conclusions in chapter 23. This scenario would mean the proposed development would fail to meet its project objectives as set out in the Design Statement [\[REP5a-007\]](#), section

4.2] or allow for co-existence/ co-location to occur as advocated by paragraphs 2.5.2, 2.8.48 and 2.8.203 of NPS EN-3 – see further discussion in our conclusions chapter of this report.

- 11.3.50. Although Spirit has argued the proposed development would conflict with its duty under section 9A of the Petroleum Act 1998 and the Oil and Gas Authority (OGA) Strategy (which establish a principal objective and central obligation on operators to maximise the economic recovery of UK petroleum) we also note part b) of the central obligation of the OGA Strategy requires operators “...to take appropriate steps to assist the SoS in meeting the net zero target including by reducing as far as reasonable in the circumstances greenhouse gas emissions from sources such as flaring and venting and power generation, and supporting carbon capture and storage projects” (OGA Strategy 2021).
- 11.3.51. In our view the term ‘including’ is not a closed list and therefore the steps to be taken by the oil and gas industry to assist the SoS in meeting net zero need not necessarily be limited to just the introduction of carbon reduction measures to reduce the effects of oil and gas operations themselves. In our view such steps could therefore reasonably include ensuring existing oil and gas operations align with the broader energy transition goals by facilitating and enabling co-existence and co-location with other renewable energy developments. Consequently, as Spirit has advised that COP is expected to be 2027 plus or minus (+/-) 2 years [[REP4-070](#), paragraph 6.1] we consider that as from 1 January 2029 (or later should the applicant not commence the development prior to this date) the priority in terms of any restrictions imposed through the PPs should move in favour of the proposed development rather than the oil and gas industry.
- 11.3.52. Consequently, having considered each parties’ view, we consider and recommend that a 3.76nm interim aviation buffer should be imposed until COP or 1 January 2029 (or later should the applicant not commence development prior to this date) and that after this point there should be 1.9nm enduring aviation buffer to the oil and gas platforms. Whilst we acknowledge that this would result in helicopter flights to and from the oil and gas platforms being restricted to daytime and VMC conditions, we are satisfied that the risk to safety would not be intolerable as Spirit has confirmed such a buffer is sufficient to ensure safe access can be achieved. Therefore, we are content any residual negative effects would be minimised to as low as is reasonably practicable.
- 11.3.53. Additionally, we consider our recommended PPs would not materially or adversely affect the future viability of Spirit or Harbour’s existing operation, maintenance or decommissioning activities. However, we do consider that compensation should be payable by the applicant for any additional costs incurred by Spirit and Harbour as a result of reduced helicopter access and so the PPs make provision for this. As explained in chapter 25, we consider it would not be appropriate to define a maximum figure or amount on the face of the DCO. Instead, we conclude that these are matters which should be

properly dealt with, if necessary, through the arbitration process provided for in schedule 5 of the recommended development consent order (rDCO).

- 11.3.54. The recommended PPs in schedule 3 of the rDCO in our view balance the interests of both parties, ensuring adequate safeguards for the continued and safe operation and subsequent decommissioning of the existing oil and gas industry while facilitating the proposed development. This approach allows the renewable energy benefits of the project to be realised and aligns with the pragmatic decision-making principles set out in NPS EN-3 paragraph 2.8.342. The PPs would also enable co-existence and co-location to occur without introducing intolerable safety risks and therefore ensure the development meets the requirements of NPS EN-3 paragraphs 2.5.2, 2.8.48, 2.8.203, 2.8.344, and 2.8.345 and complies with policies NW-OG-1 and NW-OG-2 of the NWMP and, insofar as it relates to consideration of issues relating to oil and gas infrastructure, policy NW-CO-1.
- 11.3.55. Taking all of the above into account, whilst the proposed development would affect the existing operations of the oil and gas industry, we consider the residual effects of those impacts not to be significant or so detrimental that they should weigh heavily against the making of the Order. Nevertheless, we acknowledge that the presence of the proposed development would place restrictions on the current operations compared to the pre-development situation and as such afford those effects little negative weight in the overall planning balance.

Effects on future carbon capture and storage proposals

- 11.3.56. Spirit has submitted that the proposed development would hamper the bringing forward the proposed MNZ project which could potentially store a gigaton of CO₂. Spirit argues the capacity of the proposed development to reduce GHG emissions would therefore be dwarfed by that of the MNZ project and so the potential detrimental effects of the proposed development on the MNZ project weigh heavily against the proposed development.

ExA's considerations in relation effects on future carbon capture and storage proposals

- 11.3.57. We note an appraisal licence has been issued in connection with the MNZ project; however, this licence does not constitute any permission or agreement for lease that allows for the storage of CO₂ within depleted gas fields at this current time. There is nothing before us to suggest the MNZ proposals have advanced to a point whereby it would be reasonable or necessary to restrict the proposed development and instead we concur with the applicant that, given the design of the offshore infrastructure for MNZ is at an early stage, it would be possible for Spirit to design its facilities such that access is not unduly impacted by the presence of the proposed development [[REP6-040](#), page 112]. As such we consider there is no need for the applicant to have identified or proposed any mitigation or measures as part of its proposals in relation to the MNZ project. As confirmed in chapter 25, we consider it unnecessary for there to be any PPs to be made in favour of that licensee.

- 11.3.58. We therefore conclude that the effects of the proposed development on the future carbon capture and storage proposals should be afforded neutral weight in the planning balance.

Effects on other offshore activities including disposal and aggregate sites, telecommunication cables and marine recreational users

- 11.3.59. No disposal or aggregate sites overlap with the application site and no operators made any representations or participated in the examination. Based on the information before us we are satisfied that no direct effects on those existing activities would occur and concur with the applicant's assessment that any indirect effects would be 'negligible adverse' in terms of their significance and therefore not significant in EIA terms.
- 11.3.60. In respect to impacts on subsea telecommunication cables, again the owners/ operators of those assets did not participate in the examination. The applicant has indicated that crossing and proximity agreements would be agreed with relevant assets owners post-consent [[REP1-039](#), paragraphs 17.112 and 17.148]. However, in the absence of these, we are satisfied that the PPs included in schedule 3 of the dDCO [[REP6-002](#)] would be sufficient to protect and mitigate for the impacts of the proposed development on known subsea telecommunication cables within the application site.
- 11.3.61. Finally, given the distance of the application site offshore and based on the evidence before us, most marine recreational activity takes places along the coast. Recreational use of the application site is therefore low and whilst there may be some disruption to recreational craft that do pass through the application site, safety zones would be well marked and we are content that there would be sufficient searoom between WTGs/ OSPs to allow vessels to safely pass through and around the site. We therefore concur with the applicant's conclusions that the proposed development would not have a significant adverse effect on those activities and are satisfied that the proposals comply with paragraphs 2.8.328 and 2.8.333 of NPS EN-3 and policies NW-ACC-1 and NW-TR-1 of the NWMP.

ExA's considerations in relation to effects on other offshore activities including disposal and aggregate sites, telecommunication cables and marine recreational users

- 11.3.62. Overall, we are content that the matters in relation to the potential effects of the proposed development on marine disposal/ aggregate sites, other subsea telecommunication cables and marine recreational users have been resolved to the extent that is necessary for the purposes of the examination. We have no reason to believe that there would be significant adverse effects on those activities as a result of the proposed development and so conclude that the effects on these receptors should be afforded neutral weight in the planning balance.

11.4. CONCLUSIONS

- 11.4.1. We are satisfied that the applicant has had regard to the NWMP and engaged with relevant stakeholders to identify existing and known or potential activities and infrastructure that have the potential to interact and be affected by the proposed development.
- 11.4.2. We are also satisfied that through this engagement the applicant has sought to shape its assessments to minimise potential interactions and addressed potential impacts on some, but not all, other offshore infrastructure and activities. This includes potential effects on subsea cables, oil and gas infrastructure and marine recreational users. However, it is evident that concerns about the potential impact of wake effects on existing OWFs were raised by the Ørsted IPs during the pre-application stage. During our examination the applicant did not contest that wake effects could occur or dispute the level of effect as identified within the Ørsted IPs own wake effects assessment. As the applicant did not carry out its own assessment or demonstrate that best efforts or opportunities were taken to try and resolve and minimise the negative effects of wake loss through early engagement with affected IPs or through proper assessment, we have concluded that the applicant does not fully comply with the requirements of paragraph 2.8.197 of NPS EN-3 and policy NW-CO-1 of the NWMP, insofar as it relates to co-existence with other offshore wind infrastructure. In our view, this non-compliance should be given a little negative weight in the planning balance.
- 11.4.3. Although the applicant did not carry out its own wake effects assessment, it did however update its GHG assessment to take into account the effects of wake loss in terms of net greenhouse gas emissions. Given this we are satisfied that it has adequately assessed the environmental effects of the proposed development as required by Regulation 14 paragraph 5(f) of Schedule 4 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 and has met the requirements of section 4.3 of NPS EN-1.
- 11.4.4. In respect of impacts on existing oil and gas operations and infrastructure, we conclude that a balanced and pragmatic approach is required to address the effects and concerns raised by the oil and gas industry. We recommend revised PPs that we consider balance the interests of both parties that would ensure there are adequate safeguards in place to allow for the continued and safe operation of the existing oil and gas industry while facilitating the proposed development. This approach would allow the renewable energy benefits of the proposed development to be realised whilst enabling co-existence and co-location to take place and ensuring any disruption, economic loss or risks to safety are minimised and avoided. We are therefore satisfied that the proposals comply with the requirements of paragraphs 2.5.2, 2.8.48, 2.8.203, 2.8.344 and 2.8.345 of NPS EN-3 and policies NW-OG-1 and NW-OG-2 of the NWMP and, insofar as it relates to co-existence with oil and gas infrastructure, policy NW-CO-1 of the NWMP. Nevertheless, we acknowledge that the presence of the proposed development would place restrictions on the current operations compared

with the pre-development situation and afford those effects a little negative weight in the overall planning balance.

- 11.4.5. In terms of effects on future carbon capture and storage proposals, whilst a licence has been issued for the initial exploration and appraisal stages of this proposed development, no permission or agreement for lease has yet been granted that would allow for the storage of CO₂ within depleted gas fields. Given the early stage of these proposals, including the lack of any details about the design and location of the offshore infrastructure needed to support any such activity, we consider it neither necessary nor reasonable for the applicant to have identified or proposed any specific mitigation. We also consider it unnecessary for any protective provisions to be made in favour of that licensee. We have concluded that the proposals comply with the requirements of NPS EN-3 and policies NW-OG-1 and NW-OG-2 of the NWMP and that the effects of the proposed development on the future carbon capture and storage proposals should be afforded neutral weight in the planning balance.
- 11.4.6. We conclude that matters in relation to the potential effects of the proposed development on disposal/ aggregate sites, other subsea telecommunication cables and marine recreational users have been resolved to the extent that is necessary for the purposes of the examination. We are satisfied that the proposals comply with the requirements of NPS EN-3 and policies NW-ACC-1 and NW-TR-1 of the NWMP and that the effects on these receptors should be afforded neutral weight in the planning balance.
- 11.4.7. Overall, when considered as a whole, we conclude that the effects of the proposed development on other infrastructure and other users should be afforded a little negative weight in the planning balance.
- 11.4.8. In our view, the applicant's proposals and the proposed development:
- complies with the requirements of section 4.3 of NPS EN-1 and Regulation 14 paragraph 5(f) of schedule 4 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017
 - complies with paragraphs 2.5.2, 2.8.46 to 2.8.48, 2.8.199, 2.8.203 of NPS EN-3 as the applicant has shown that it has had to the NWMP and engaged with key stakeholders and IPs to identify existing and known or potential activities and infrastructure that have the potential to interact and be affected by the proposed development
 - fails to fully comply with the requirements of paragraphs 2.8.197, 2.8.200, 2.8.261 and 2.8.344 of NPS EN-3 in respect to impacts on existing offshore wind infrastructure as we do not consider best efforts and opportunities were taken to minimise negative effects through early engagement
 - would not engage the requirements of paragraph 2.8.347 of NPS EN-3 as we are not persuaded that the wake loss effects of the proposed development would affect the future viability of the existing offshore wind developments

- meets the requirements of paragraphs 2.5.2, 2.8.48, 2.8.203, 2.8.344 and 2.8.345 of NPS EN-3 in respect to impacts on oil and gas infrastructure and that the PPs would enable co-existence and co-location to occur without introducing intolerable safety risks
- complies with the requirements of paragraphs 2.8.328 and 2.8.333 of NPS EN-3 and policies NW-ACC-1 and NW-TR-1 of the NWMP as we are satisfied the proposals would not have any significant adverse effects to marine disposal/ aggregate sites, other subsea telecommunication cables and marine recreational users

12. MARINE ARCHAEOLOGY

12.1. INTRODUCTION

12.1.1. This chapter of the report deals with the effect of the proposed development on marine archaeology, which includes all marine heritage assets. Matters relating to onshore cultural heritage are dealt with in chapter 17.

12.1.2. In our consideration of marine archaeology, we have had regard to:

- the requirements of the Overarching National Policy Statement for Energy (NPS EN-1), and in particular section 5.9, National Policy Statement for Renewable Energy Infrastructure (NPS EN-3), paragraph 2.3.8 and section 2.8
- the relevant policies of the North West Inshore and North West Offshore Marine Plan (NWMP), particularly Policy NW-HER-1
- any matters prescribed in relation to the development
- any other important and relevant matters

12.2. THE APPLICATION

12.2.1. The applicant's case in relation to marine archaeology was set out in chapter 15 of the environmental statement (ES) [\[REP3-022\]](#) accompanied by two appendices, appendix 15.1 an 'Archaeological Assessment of Geophysical and Hydrographic Data' [\[APP-075\]](#) and appendix 15.2 a 'Seismic Data Review' [\[APP-076\]](#), and various figures within [\[APP-099\]](#).

12.2.2. The assessment was informed by, and took into account, the findings and conclusions of other relevant topics and chapters of the ES. Those chapters included:

- Chapter 7 'Marine Geology, Oceanography and Physical Processes' [\[REP5a-015\]](#).
- Chapter 18 'Seascape, Landscape and Visual Impact Assessment' [\[REP3-026\]](#).

12.2.3. The following document is also relevant and was subject to discussions with stakeholders during the examination:

- Outline Offshore Written Scheme of Investigation (oOWSI) [\[REP5-038\]](#)

12.2.4. The opening sections of this chapter dealt with the overall focus of chapter 15 of the ES and set out the consultations that occurred prior to the submission of the application. The applicant sets out its view of the realistic worst-case scenario, based on gravity based foundations for 35 wind turbine generators (WTG) and 2 offshore substation platforms (OSP) together with associated cabling [\[REP3-022\]](#), table 15.2].

BASELINE

12.2.5. The applicant noted that the area of Liverpool Bay was largely above water during the Palaeolithic period and repeatedly overridden by ice sheets. Following the end of this period, the area is known to have been

characterised by a landscape of open tundra and floodplains cut by numerous watercourses draining from the surrounding highlands into large shallow lakes.

- 12.2.6. Palaeographic research of the Irish Sea and Liverpool Bay area shows that the application site has a shallower bathymetry than further west, and that the application site is in proximity to the Mesolithic coastline which existed around 10,000 years Before Present. There is thus the possibility of evidence of human activity in the area. In the later Neolithic period, the area was inundated with sea-levels around current levels. Therefore, any archaeology from this period on would be likely to be of a marine nature.
- 12.2.7. The vast majority of the application site was surveyed by the applicant, with the only exception being around a 500 metre (m) Exclusion Zone around the, now disused and removed, gas platform. Additionally, the Agreement for Lease (AfL) area was surveyed along with a 500m buffer around the overall area.
- 12.2.8. The overall site was divided into five geological areas. These are shown in figures 22 to 26 in appendix 15.1 [\[APP-075\]](#). Two of the units (units 4 and 3) were considered unsuitable for human activity due to the adverse subglacial and marine conditions. Unit 4 overlays unit 5 and thus unit 5, in the applicant's view, did not need further consideration.
- 12.2.9. The applicant considered that unit 2 had some paleoenvironmental potential due to its potentially deltaic nature, and uncertainty as to when this occurred. This unit was considered likely to have been affected by marine erosion which, in the applicant's view, would have affected the evidential potential of the unit.
- 12.2.10. Unit 1 was thought by the applicant to be primarily marine in nature, although this also represents the area of the Holocene transgression meaning that the application site may have been terrestrial, bordering a floodplain.
- 12.2.11. The applicant reported that there are no known seabed pre-history sites within the application site for which significance can be described. Similarly, there are no known sites within the application site subject to statutory protection relating to either wrecks or aviation archaeology.
- 12.2.12. Geotechnical surveys were undertaken in July to October 2023. The applicant reported *"a series of channelised features were identified in the data, along with localised high amplitude reflectors that may be indicative of shallow gas or organic deposits. Although it was noted that reverse polarity, a common signature of organic deposits in seismic data, was not observed"* [\[REP3-022\]](#), paragraph 15.122]. No sub-samples of archaeological interest were identified in the various boreholes or sample photographs.
- 12.2.13. The applicant reported these surveys identified 21 anomalies within the application site. None were determined by the applicant to be of 'high' archaeological potential, with only four being of 'medium' archaeological potential. [\[APP-099\]](#), figure 15.3].

- 12.2.14. Those of 'low' archaeological potential are said by the applicant to consist of a mixture of small features, often boulder-like, or be likely to represent modern debris such as chain, cable, rope or similar items. The applicant indicated there were no features indicating archaeological potential.
- 12.2.15. The four items of 'medium' archaeological potential significance were considered by the applicant to have a likelihood of representing anthropogenic (human derived) debris. [REP3-022, paragraphs 15.136 to 15.141].
- 12.2.16. The surveys also identified 45 magnetic anomalies which do not correlate, according to the applicant, to known features or infrastructure. [APP-099, figure 15.4]. One magnetic anomaly directly correlates to one of the anomalies of 'medium' archaeological potential referred to in paragraph 12.2.15.
- 12.2.17. Only one of the 45 anomalies, located in the southwest part of the application site, was considered by the applicant to be 'large' and is presumed to be buried as it has not been identified in any other data set. Two other magnetic anomalies are considered to be of 'medium-low' intensity and have been recorded in the northwest of the application site close to the western boundary. Neither fall within any UK Hydrographic Office (UKHO) or National Record of Historic Environment (NRHE) record, but that close to the western boundary is around 85m from one of the NRHE records meaning the applicant considered that they may be related.
- 12.2.18. There are two UKHO records within the application site [APP-099, figure 15.5]. Both are in the southeast of the application site and are considered 'dead' (that is not detected on further repeated surveys).
- 12.2.19. There are 39 maritime NRHE records within the application site [APP-099, figure 15.6]. All are "[u]nidentified seabed obstruction reported by fishermen. Possibly indicative of wreckage or a submerged feature". One of these records relates to a UKHO record, but the remainder do not correlate with any other anomaly.
- 12.2.20. In light of the above, the applicant considered that the potential for undetected, buried and archaeological material was generally 'low'. But it noted that there is potential for archaeological remains to be in mobile sandwaves. Furthermore, given the line spacing of the magnetometer surveys, it is possible that further features may be present but simply not detected to date.
- 12.2.21. The applicant considered that the cultural significance of unidentified wrecks and debris, archaeological anomalies and potential wrecks, aircraft, and isolated finds (which are yet to be discovered) is currently unknown, but should be examined further, post-consent, as required. If and when such work is undertaken, it would be possible to further understand the character, nature and extent of the relevant features.

- 12.2.22. The applicant noted that the setting of cultural heritage in marine situations “may not be “readily appreciated by a casual observer” [REP3-022, paragraph 15.127], although some wreck or aircraft crash sites can be experienced and appreciated within their seascape by divers or those on boat trips. However, none were identified within the application site or the immediate surrounds. The applicant noted that climate change would have little effect for offshore heritage where the marine environment, which is controlled by waves and tidal currents, will continue.

ASSESSMENT OF EFFECTS

- 12.2.23. The potential impacts identified and assessed by the applicant for each phase insofar as they relate to marine archaeology/ heritage assets were:

- direct impact to known heritage assets
- direct impact to potential heritage assets
- indirect effects to heritage assets from changes to physical processes
- effects to the setting of marine heritage assets

Construction effects

- 12.2.24. As a result of construction, the applicant acknowledged that direct physical effects may affect heritage assets either on the seabed or within seabed deposits and also may result in effects on setting. Such effects may occur from the footprint of the proposed development, both foundations and cables, or within the footprint of activities such as seabed clearance or the placement of jack-up vessels.
- 12.2.25. To avoid such effects the applicant’s approach has been to set out what would become two different types of exclusion zones depending on knowledge of the asset:
- archaeological exclusion zones (AEZ) for known archaeologically significant anomalies that were clearly identifiable in the survey data where extents are largely known
 - temporary exclusion zones (TEZ) for where an anomaly is not visible in the survey data but likely to exist on the seabed at a known position or where the extents of an anomaly are not fully identifiable.
- 12.2.26. Table 15.23 in chapter 15 of the ES [REP3-022] sets out the details of the four proposed AEZs and table 15.24 that for the single proposed TEZ.
- 12.2.27. Later pre-construction survey data, including that derived from searching for unexploded ordnance (UXO) would, according to the applicant, further clarify the nature and extent of these anomalies and the scheme design would be modified to either avoid heritage assets (that is, implement new AEZs where appropriate) or undertake additional mitigation.
- 12.2.28. In light of utilisation of the AEZs and the TEZ, the applicant considered that there would be no pathway for change during construction on known heritage assets [REP3-022, paragraph 15.182].

- 12.2.29. Concerning potential heritage assets, similar effects could occur. However, until the final design and layouts have been confirmed, the applicant noted that there would be uncertainty in the nature and extent of any direct effects. Any such direct effects would result in damage to, or disturbance of, in situ pre-historic, maritime and aviation sites and potential submerged landscape features and paleoenvironmental evidence. Such effects would be adverse, permanent and irreversible.
- 12.2.30. The applicant maintained that the magnitude of the effect would not be fully understood until after the potential heritage asset had been encountered and impact occurred. The extent of any impact would depend on the nature of the remains and the degree of damage. The applicant therefore accepted that there would be the possibility of high adverse magnitude degree of effect. This could therefore lead to a potential 'major adverse' effect which would be significant in environmental impact assessment (EIA) terms [\[REP3-022\]](#), paragraph 15.189].
- 12.2.31. To seek to avoid unintended effects during construction, the applicant has committed to further, post-consent, surveys. These would be secured in various conditions in the draft Deemed Marine Licence (dDML) contained within schedule 6 of the draft Development Consent Order (dDCO) [\[REP6-002\]](#) which in turn would secure both worked-up and approved versions of the 'In Principle Monitoring Plan' (IPMP) [\[REP6-017\]](#) and the final version of the oOWSI [\[REP5-038\]](#). The results would further contribute to the body of scientific data available. Historic England (HE) would be consulted on the scope of all further surveys so as to ensure that it would be sufficiently robust to enable professional archaeological interpretation and analysis.
- 12.2.32. In the event that in situ prehistoric sites are identified from these surveys the mitigation measures to record and or protect them would be agreed with HE.
- 12.2.33. The applicant noted that where features cannot be avoided, additional work may be required post consent to establish the archaeological interest of any feature. Once the significance of any feature has been more fully understood, appropriate mitigation measures would be determined on a case-by-case basis. Should the feature be of sufficient significance to warrant preservation in situ then they would be the subject to the same mitigation as known heritage assets (that is an AEZ).
- 12.2.34. Notwithstanding these measures, the applicant noted it would still be possible that unexpected discoveries may be encountered during construction. In this event further measures to reduce the significant of potential effects would be implemented.
- 12.2.35. In the event of an unexpected discovery of an isolated find or multiple chance finds from a specific location, which would possibly indicate a wider debris field representing previously unknown in situ archaeological material, this would be reported through a formal 'Protocol for Archaeological Discovery' (PAD) the mechanism for which is referenced in section 7.4 of the oOWSI [\[REP5-038\]](#). This would establish whether the recovered objects are

of archaeological interest and allow for, in the applicant's view, appropriate mitigation measures.

- 12.2.36. The applicant anticipated that residual effects would be no worse than of 'minor adverse' significance, which it considered not significant in EIA terms, whether considered in relation to seabed features, potential prehistoric sites or heritage assets themselves [REP3-022, paragraphs 15.202, 15.203 and 15.205].
- 12.2.37. The applicant noted that local and regional hydrodynamic and sedimentary processes may be affected resulting in indirect effects and thus change to heritage assets. The applicant noted that during the construction phase foundation installation, whether from seabed preparation or drilling, and cable installation could disturb sediment resulting in changes in seabed levels. This would include matters such as scour from any newly located infrastructure. However, the applicant considered that such effects *"the sediment within the mound would be like (but not the same as) both the seabed that it has replaced and the surrounding seabed. The change in seabed elevation is within the natural change to the bed caused by sandwaves and sand ridges and hence the blockage effect on physical processes would be negligible"* [REP3-022, paragraph 15.209].
- 12.2.38. Furthermore, the applicant considered that, given the quantities of sediment released, any change in seabed elevation is likely to be within what could be considered 'natural change' and thus any effect would be 'negligible' and with no pathway to change for the fabric of any heritage asset [REP3-022, paragraph 15.214].
- 12.2.39. In relation to impacts on setting of marine heritage assets the applicant asserted that any changes in setting would be temporary during construction and of sufficiently short duration so that they would not be anticipated to give rise to any material harm. Therefore, any changes would be of 'negligible adverse' significance and thus non-significant in EIA terms [REP3-022, paragraph 15.215].

Operation and maintenance effects

- 12.2.40. Overall, the applicant considered that it is unlikely that there would be any direct additional effects on potential heritage assets from intrusive maintenance activities as any such effects would have occurred during the construction phase of the proposed development. The applicant did acknowledge, however, that if a jack-up vessel were to be deployed outside an area not previously subject to disturbance there could be potential effects.
- 12.2.41. The applicant indicated that, in its view, in practice, the nature and extent of individual impacts cannot be fully understood until after the impact has occurred. It therefore acknowledged there is a potential for direct impacts of 'high adverse' magnitude upon potential in situ heritage assets and a 'low adverse' magnitude upon potential isolated finds.

- 12.2.42. The applicant, however, noted that the additional pre-construction surveys would have reduced, as far as possible, the potential for unintended impacts during operation and maintenance. Should there be an expected discovery, then the implementation of a formal PAD, may be utilised on a case-by-case basis proportionate to the significance of the discovery. It concluded that any residual effects would be no higher than 'minor adverse' and not significant in EIA terms [[REP3-022](#), paragraph 15.226].
- 12.2.43. As with construction effects, the applicant considered that there would be no pathway to change from changes to physical process is as a result of operational and maintenance activities [[REP3-022](#), paragraph 15.232].

Decommissioning effects

- 12.2.44. The applicant took the view that as information regarding timing and methods to be used for decommissioning is not available, it would not be possible at this stage to undertake a detailed assessment of decommissioning effects. However, it agreed they could be considered at a high level.
- 12.2.45. As with construction, AEZs would be used to avoid effects on known heritage assets during the decommissioning processes. Similarly, any effects on currently unknown heritage assets would have likely occurred during the construction of the proposed development. The applicant acknowledged, however, that should jack-up vessels be sited in different locations from those used during construction there would be the potential for effects on heritage assets. If this were to occur, there would be the potential for direct 'high adverse' impacts on in situ heritage assets and 'low adverse' upon potential isolated finds.
- 12.2.46. In similar ways as during construction, mechanisms would be instigated to minimise any such effects so, the applicant maintained, any effects from decommissioning would be no worse than 'minor adverse' and not significant in EIA terms [[REP3-022](#), paragraph 15.250].
- 12.2.47. As with construction effects, the applicant considered that there would be no pathway to change from changes to physical process is as a result of operational and maintenance activities [[REP3-022](#), paragraph 15.251].
- 12.2.48. As regards effects on the setting of marine heritage assets, the applicant maintained that decommissioning may result in further change from the removal of the WTGs and OSP(s) and associated infrastructure. However, these effects would be temporary and reversible and therefore any effects would be 'negligible adverse' as any change would not materially affect the cultural significance of any heritage asset [[REP3-022](#), paragraph 15.252].

Cumulative effects

- 12.2.49. In table 15.25 in chapter 15 of the ES [[REP3-022](#)] the applicant undertook a screening of potential cumulative effects dependent on the nature of impacts. During the construction phase it considered that there would be a potential cumulative effect for direct physical impacts on potential heritage assets.

This would also apply during the operation, maintenance and decommissioning phases.

- 12.2.50. Table 15.26 [\[REP3-022\]](#) sets out the various projects considered for cumulative environmental assessment (CEA) in respect of marine archaeology.
- 12.2.51. As with other topic areas the applicant considered the in-combination assessment with the proposed development and the Morgan and Morecambe Transmissions Assets (M&MTA) project separately from the cumulative assessment with other projects. The applicant notes that in-combination effects on submerged prehistoric receptors (including palaeolandscapes and associated archaeological receptors) were scoped out of the EIA in the M&MTA proposal.
- 12.2.52. Table 15.27 of chapter 15 of the ES [\[REP3-022\]](#) set out the applicant's view as to the cumulative effects between the proposed development and the M&MTA project. For each potential effect, the applicant took the view that cumulatively none would have a greater effect than the consideration of each project individually in each of the construction, operation and maintenance and decommissioning phases.
- 12.2.53. Turning to the 'all projects' scenarios, the applicant recognised that each of the other projects included in the CEA may result in unavoidable direct physical effects on potential heritage assets. In each case, subject to the application of appropriate mitigation, the applicant maintained that physical impacts might only be determined to be of 'negligible' or 'minor adverse' significance at worst. However, when considered collectively on a regional scale these multiple small impacts may be considered to be of greater adverse significance.
- 12.2.54. The applicant also recognised that, on a regional scale, the setting of heritage assets as part of wider paleolandscapes, maritime and aviation networks and heritage assets may cumulatively contribute to considerations of cultural significance at a regional scale.
- 12.2.55. However, the applicant noted each of the projects would have also completed/ undertaken archaeological assessments in advance of construction. These would include the assessment of any pre-construction geotechnical and geophysical data as required. This information may include paleolandscape features mapped to allow a better understanding of the potential for landscapes and habitable environments when sea levels were lower allowing human habitation.
- 12.2.56. Therefore, the applicant considered that on a regional basis it would be possible for cumulative impacts from the proposed development along with other proposed projects to be offset through the mapping of accessible data and provision of publicly accessible data post consent. This approach is set out in the oOWSI [\[REP5-038\]](#).

12.3. ISSUES CONSIDERED DURING THE EXAMINATION

THE CASE FOR INTERESTED PARTIES

Historic England

- 12.3.1. In the statement of common ground (SoCG) with HE [\[REP5a-044\]](#) HE agreed all matters with the applicant. HE considered the proposed development is compliant with planning policy and guidance, and that the approach to assessment of effects for marine archaeology, including cumulative effects, is adequate.
- 12.3.2. HE agreed with the use of AEZs and TEZs as the primary mechanism for in situ protection of materials of known or possible archaeological interest. HE also concurs with the use of an oOWSI which would be worked up post-consent and the approval would be subject to consultation with HE.

Cadw

- 12.3.3. Cadw did not raise any matters relating to marine archaeology in its RR [\[RR-015\]](#) or at any other point in the examination.

Marine Management Organisation

- 12.3.4. In its RR [\[RR-047\]](#) the Marine Management Organisation (MMO) indicated that it deferred to HE on matters of marine archaeology and supports any comments raised.

ISSUES

- 12.3.5. There was little discussion as to the effects on marine archaeology within the examination as all matters were agreed with the relevant statutory bodies.
- 12.3.6. We consider that for marine archaeology the main important and relevant issues for reporting are:
- baseline surveys
 - micrositeing
 - unknown assets

Baseline surveys

- 12.3.7. We consider that the applicant has undertaken reasonable endeavours to ascertain whether there are likely to be any archaeological features on or within the application site. The geological record indicates that there is the possibility of human activity when the application site was in the area of the coast during the Mesolithic period, but in the deltaic area, this is likely to have been eroded.
- 12.3.8. Investigation by the applicant has not revealed any designated heritage assets within the application site, but this does not, of course, rule out the potential for unknown archaeological heritage assets of an equivalent significance. However, we are satisfied that the applicant has made appropriate provision both within and secured through the dDCO [\[REP6-002\]](#)

such as the oOWSI [\[REP5-038\]](#) secured by condition 9(1)(f) of the dDML within schedule 6, to ensure that appropriate further investigation would take place and appropriate mitigation undertaken in the event that archaeology was to be discovered.

ExA's considerations on baseline

- 12.3.9. The surveys undertaken to date have revealed a small number of 'medium' archaeologically significant features, which has led to the identification of AEZs. We therefore consider that the applicant would preserve these assets in line with paragraphs 5.9.22 to 5.9.36 of NPS EN-1.

Micrositing

- 12.3.10. The various WTGs and OSPs would be laid out in two lines of orientation to meet marine guidance note (MGN) 654. This would be secured by condition 9(1)(a) in the dDML in schedule 6 of the dDCO [\[REP6-002\]](#). In compliance with this sub-paragraph a design plan would need to be submitted and approved showing the precise layout taking account, among other matters, of any archaeological exclusion zones.
- 12.3.11. During examination this led to a discussion about the issue of micrositing, the precise location of WTGs and OSPs, and how these would be secured. In our ExQ1DCO8 [\[PD-011\]](#) we asked the applicant, the MMO, HE and Maritime and Coastguard Agency (MCA), Trinity House (TH) and affected local authorities whether there should be a maximum limit for variation from the two lines of orientation, and if this was to be varied by consent how this was to be achieved.
- 12.3.12. In its deadline (D2) response [\[REP2-034\]](#) the MCA proposed that the maximum tolerance for micrositing should be 55m in any direction unless agreed with the MMO following consultation with the MCA and TH. This was agreed by the applicant in its response to this question [\[REP3-068\]](#) and incorporated in the dDCO [\[REP6-002\]](#) in condition 9(1)(a)(ii) of the dDML.
- 12.3.13. This would allow for the precise location of the WTGs and OSP(s) to ensure that any archaeological exclusion zones, whether an AEZ or TEZ, among other matters, would inform the layout.

ExA's considerations on micrositing

- 12.3.14. We are satisfied that with the amendments made to the dDCO [\[REP6-002\]](#) during the examination that appropriate provision has been made to minimise the risks that the proposed development could have on marine archaeology through the use of micrositing of individual WTGs and OSPs.

Unknown assets

- 12.3.15. Should a currently unknown asset be discovered from later survey then appropriate provision would be in place to secure the assets preservation. If a currently unknown asset were to be discovered during construction, which in light of the survey information provided to date we consider unlikely, then

that asset would be lost. This would lead to a high adverse effect, but as we say we consider this an unlikely event.

- 12.3.16. We are satisfied that any secondary scour effects would be extremely localised, and therefore the surveys would ensure that these would not adversely affect known, or following future survey known heritage assets.

ExA's considerations on unknown assets

- 12.3.17. On the basis of the evidence currently available, we are satisfied that the foundations of the proposed development would not have an unacceptable effect on marine heritage assets and thus comply with paragraph 2.8.33 of NPS EN-3.
- 12.3.18. Turning to cumulative effects, we are satisfied that the only opportunity for such effects would be with the M&MTA project as the others would all be geographically distinct. We also agree with the applicant that there would be no opportunity for cumulative effects in the sense of greater effects being visited upon a receiver than each individually identified.

12.4. CONCLUSIONS

- 12.4.1. We are satisfied that the applicant has undertaken an assessment of the heritage assets whose significance may be affected by the proposed development, setting out those significances and how they can be understood in line with paragraphs 5.9.9, 5.9.10 and 5.9.12 of NPS EN-1.
- 12.4.2. We are satisfied that the applicant has properly assessed the potential for the proposed development to affect the significance for both known and unknown heritage assets and has set out appropriate avoidance measures for those which are known at this point in time. This would also apply for currently unknown heritage assets that are identified in specified future surveys in defining the final layout in accordance with paragraphs 5.9.9, 5.9.10 and 5.9.18 of NPS EN-1.
- 12.4.3. While it would not be possible to avoid currently unknown heritage assets which were only encountered during construction, the likelihood of this occurring is considered to be limited due to post-consent surveys and micro-siting. Furthermore, if this were to occur, appropriate recording would take place. While this would not represent mitigation or compensation, this is realistically the only measure that could be put in place, and would lead to harm.
- 12.4.4. Although there has to be some remaining uncertainty as to this, we consider, on the basis of the evidence in front of us that the proposed development would have a neutral effect on marine archaeology and thus be neutral in the planning balance. Within the terms of NPS EN-1 it would result in the preservation of these heritage assets.

12.4.5. We are therefore satisfied that the proposed development would comply with:

- paragraph 4.7.2 of and section 5.9 of NPS EN-1 which indicate that applying good design to energy projects may affect heritage and sets out in detail policy requirements.
- paragraphs 2.8.33, 2.8.76, 2.8.111, 2.8.169 to 2.8.172, 2.8.255, 2.8.284 and 2.8.292 of NPS EN-3 which deal with marine archaeology. In particular, the applicant has committed to additional surveys and appropriate exclusion zones
- policy NW-HER-1 of the NWMP which indicates that proposals should demonstrate that they will conserve and enhance the significance of heritage assets using a avoid – minimise – mitigate hierarchy

13. MARINE GEOLOGY, OCEANOGRAPHY AND PHYSICAL PROCESSES

13.1. INTRODUCTION

13.1.1. This chapter deals with marine geology, oceanography and physical processes. Matters relating to marine sediment and water quality are considered in chapter 15. Effects on Special Areas of Conservation (SAC) in a Habitat Regulations Assessment (HRA) context are discussed separately in the Report to Inform Appropriate Assessment (RIAA) [[REP5a-009](#)] and are reported on in chapter 22 of this report.

13.1.2. In our consideration of marine geology, oceanography and physical processes, we have had regard to:

- the requirements of the Overarching National Policy Statement for Energy (NPS EN-1), in particular section 5.6, and the National Policy Statement for Renewable Energy Infrastructure (NPS EN-3), section 2.8
- the relevant policies of the North West Inshore and North West Offshore Marine Plan (NWMP), particularly policies NW-CAB-1, NW-WQ-1 and NW-MPA-4
- any matters prescribed in relation to the development
- any other important and relevant matters

13.2. THE APPLICATION

13.2.1. The applicant's case in relation to marine geology, oceanography and physical processes was set out in chapter 7 of the environmental statement (ES) [[REP5a-015](#)] which was supported by appendix 7.1 Offshore Geophysical Survey [[APP-062](#)] and associated figures [[REP3-036](#)].

13.2.2. The assessment was informed by, and took into account, the findings and conclusions of other relevant topics and chapters of the ES. Those chapters included:

- Chapter 8 'Marine Sediment and Water Quality' [[REP2-010](#)].
- Chapter 9 'Benthic Ecology' [[REP5a-017](#)].
- Chapter 10 'Fish and Shellfish Ecology' [[REP3-016](#)].
- Chapter 13 'Commercial Fisheries' [[REP3-018](#)].
- Chapter 15 'Marine Archaeology and Cultural Heritage' [[REP3-022](#)].

BASELINE

13.2.3. The applicant's case was based on what it described as a realistic worst-case scenario, which is set out in table 7.2 of chapter 7 of the ES [[REP5a-015](#)].

13.2.4. Table 7.3 of chapter 7 of the ES [[REP5a-015](#)] sets out what the applicant considered to be the mitigated measures embedded into the design of the proposed development.

- 13.2.5. The study area identified by the applicant for the purposes of this topic consists of the eastern Irish Sea, between the north coast of Wales, the coastline of England from the Welsh border to Whitehaven and the Isle of Man and is shown in figure 7.1 in [\[REP3-036\]](#).
- 13.2.6. Following consultation at the pre-application stage, the applicant utilised what it described as an “*evidence-based conceptual assessment approach*” to incorporate numerical modelling undertaken for the proposed Morgan and Mona offshore windfarms (OWF) as part of the assessment for the proposed development as well as from the assessment undertaken for the now consented Awel y Môr OWF. This was because the applicant considered that the marine physical processes operating at those sites would be comparable to those associated with the application site.
- 13.2.7. Table 7.12 of chapter 7 of the ES [\[REP5a-015\]](#) set out the comparative baseline parameters for the four sites. In summary, the applicant considered that the sites have many similarities in environmental conditions. The biggest difference relates to the percentage of ‘fines’ across the site. However, even in the highly precautionary worst-case scenarios for the other three, the applicant maintained that their assessments align with those of the proposed development and the modelling would encompass any effects caused by the proposed development in isolation. Therefore, it concluded that additional project-specific hydrodynamic and sediment transport modelling would be disproportionate.
- 13.2.8. There are no designated sites within the application site, with the nearest being over 8 kilometres (km) away at the Fylde Marine Conservation Zone (MCZ). Impacts on these receptors, according to the applicant, would therefore be limited to the potential overlap of sediment plumes (at low concentrations) during seabed disturbance, with small variations in wave, tidal and sedimentary regimes.
- 13.2.9. As regards cumulative assessments, the applicant only included other activities where it considered there would be a spatial and/ or temporal overlap in impacts, or where the impacts might be additive and affect a defined receptor group.
- 13.2.10. The applicant scoped out potential transboundary effects as the application site would be a minimum of 120km from any international territory, and thus the applicant considered that there would be no pathway for such impacts.
- 13.2.11. Figure 7.1 within the ES [\[REP3-036\]](#) shows that water depths in the study area range from nil, at the coast, gradually deepening to 58 metre (m) below lowest astronomical tide (LAT) in the western portion of the study area. Water depths in the application site range from 18m below LAT in the eastern part to 40m below LAT in the southwestern part.
- 13.2.12. Mapping of the study area shows a mixture of longitudinal bedforms (mainly sand ribbons) in the western portion, undifferentiated bedforms and medium to large sandwaves in the central portion and a smooth seabed/ mud belt in

the eastern portion. The application site falls within the Eastern Irish Sea Mud Belt, which is a smooth and relatively featureless seabed.

- 13.2.13. The gradient across the application site was described as “*very gentle*” with slopes of less than 1 degree (°) across most of it. Maximum seabed gradients were observed in isolated areas on the flanks of megaripples (that is features with wavelengths of 0.5m to 25m and heights up to 0.5m). Megaripples with crests travelling north-south are prevalent across the western half of the application site indicating a net direction of transport from west to east caused by tidal currents. There are some lineations, caused by currents, which are aligned west-southwest – east-northeast. Generally, there are a lack of sandwaves within the application site, but some were identified in the southwestern extent of the survey area.
- 13.2.14. The overall site has been divided into five geological areas which are described as “*complex*” given the many periods of glaciation experienced in the Irish Sea. These are shown in table 7.15 of chapter 7 of the ES [\[REP5a-015\]](#). Triassic bedrock (Unit 5) with an undulating top is overlaid by Unit 4 (Cardigan Bay Formation), Unit 3 (Western Irish Sea Formation B) and Unit 2 (Western Irish Sea Formation A), which are all from the Pleistocene. The three upper layers vary in thickness and are not present across the whole application site. The uppermost Unit 1 (Surface Sands Formation) is the most recent sedimentary deposit although a thin veneer of unconsolidated mobile sand lies on top of this unit, directly below the seabed.
- 13.2.15. The study area is subject to tides, with tidal streams of up to 1 metre per second (m/s). On spring tides depth averaged flood tide speeds are approximately 0.75m/s to 1.0m/s and approximately 0.5m/s to 0.75m/s on the ebb. The mean spring tidal ellipse at the application site is orientated west-east and is approximately 9km to 10km long.
- 13.2.16. Tidal ranges in the eastern Irish Sea vary from 4.9m at Holyhead to over 10m at Liverpool. Storm surges in the Irish Sea are maximised at Liverpool and in Morecambe Bay. As far as the application site is concerned, tides follow a semi-diurnal macrotidal regime with spring tide ranges from approximately 6.0m to 7.0m across the site.
- 13.2.17. Due to the land masses of Ireland, the Isle of Man and Anglesey and offshore sandbanks, waves in the study area are mostly locally generated by the wind and have short period; significant waves rarely exceed 4m. At the application site mean annual wave heights range from 1.1m to 1.2m. The largest waves (greater than 2m) come from the west.
- 13.2.18. Turning to sediment on the application site, the ES reported that the application site is broadly characterised by sand in the northeast and southwest, clayey sand in the centre and gravelly sand to the east. This is shown in figure 7.7 [\[REP3-036\]](#). The applicant undertook sampling at 34 stations within the application site shown in figure 7.8.

- 13.2.19. The average sediment type was surveyed as fine sand. Median particle sizes range between 0.044 millimetres (mm) (coarse silt) and 0.35mm (medium sand). Average gravel content was 0.1% across all but one of the stations with the last having a higher gravel content at 20.6%. Mud content varied from 0% to 55.6% and averaged 22.5%. Mud content was less than 30% in 67% of samples and less than 10% in 19% of those within the application site. The highest content of silt was in the eastern half of the application site and average sand content across the whole of the application site was 76.9%.
- 13.2.20. Average suspended sediment concentration (SSC) in the west of the application site was surveyed to be approximately 3 milligrams per litre (mg/l) to 5mg/l increasing to approximately 5mg/l to 7mg/l in the east. Concentrations are elevated when spring tides coincide with storm events, when they may rise to several hundred milligrams per litre. The applicant cites surveys in the Gwynt y Môr Offshore Windfarm array that report SSC of more than 300mg/l during such an event.
- 13.2.21. The applicant considers that due to the relatively short (35 years) indicative design life of the proposed development that climate change would have little effect offshore where landscape-scale changes in water depths would far outweigh any minor changes in sea level rise.
- 13.2.22. The main receptors identified by the applicant for marine geology, oceanography and physical processes are coastal or offshore areas with an inherent geological or geomorphological value or function which may potentially be affected by the proposed development. These are set out in table 7.16 in chapter 7 of the ES [[REP5a-015](#)] and shown in figure 7.2 [[REP3-036](#)]. The nearest being the Fylde MCZ (a subtidal sediment habitat) and an area of Annex 1 sandbank, both of which are some 8km away to the east. The Shell Flat and Lune Deep Special Area of Conservation (SAC) (sandbanks which are slightly covered by sea water at all times) is located some 10km to the east-northeast.
- 13.2.23. The descriptions of all the identified receptors were set out in chapter 7 of the ES [[REP5a-015](#), paragraphs 7.121 to 7.130].

ASSESSMENT OF EFFECTS

Construction effects

- 13.2.24. The applicant considered that during the construction phase of the proposed development, foundation and cable installation activities would disturb sediment, resulting in changes in SSCs and/ or seabed levels. The applicant considered effects from increases in SSCs in the water column and subsequent deposition on the seabed separately and these are considered in chapter 15 of this report.
- 13.2.25. The applicant identified zones of influence (Zol) based on an understanding of the tidal ellipses drawing on “*knowledge*” [[REP5a-015](#), paragraph 7.132] that effects arising on the hydrodynamic and sedimentary regime are

considered to be relatively small in magnitude and restricted to the distance of a single tidal ellipse.

13.2.26. Figure 7.5 [REP3-036] showed that the ZOI from the application site partially overlaps the Fylde MCZ (approximately 7.10 square kilometres (km²) or 2.7% of the MCZ), the Shell Flat and Lune Deep SAC (approximately 0.40km² or 0.3% of the SAC) and the Annex I Sandbank (7.50km² or 2.0%). The applicant considers that there would be no pathways of effect for the other identified sites in the area.

13.2.27. The applicant has identified 7 potential impacts, although two of these are further subdivided as to the source of those potential impacts. All of these are analysed in detail and summarised in table 7.35 of chapter 7 of the ES [REP5a-015]. All were identified as 'not significant' in environmental impact assessment (EIA) terms, with some being 'no change'. On this basis the applicant has not proposed any additional mitigation measures.

Operation and maintenance effects

13.2.28. The applicant indicated that during the operation and maintenance period the proposed development could cause changes to tidal and wave regimes from its physical presence. These could potentially affect sediment transport and/or seabed morphology. In addition, during maintenance activities, there would also be potential for disturbance of the seabed.

13.2.29. This led to the applicant identifying 6 potential impacts. Again, these are analysed in detail and summarised in table 7.35 of chapter 7 of the ES [REP5a-015]. In all cases the effects have been identified as 'not significant' in EIA terms and consequently no additional mitigation measures were proposed.

Decommissioning effects

13.2.30. The applicant considered that decommissioning effects would be comparable to those during construction. The applicant noted that at the present time there is a lack of information on the timings and methodology to be used. Therefore, any assessment undertaken would be high-level.

13.2.31. In this regard, the applicant identified 5 potential impacts which are set out and analysed in detail in section 7.6.4 of chapter 7 of the ES [REP5a-015]. Again, all effects were considered by the applicant to be 'not significant' in EIA terms, and, consequently, no additional mitigation measures were proposed.

Cumulative effects

13.2.32. As with other topic areas, the applicant firstly considered the cumulative effects with the Morgan and Morecambe Transmission Assets (M&MTA) project (the 'combined assessment') and then went on to consider those with other identified projects (the 'all projects assessment').

- 13.2.33. For the purposes of the marine matters considered within this chapter of the report, only marine elements of the M&MTA project would interact with any physical processes. In this case the only elements that could interact with the proposed development would be the provision of the export cables from the OSP(s) to the coast.
- 13.2.34. The applicant considered the same three phases as for the project-alone, namely construction, operation and maintenance and decommissioning.
- 13.2.35. For construction, the applicant accepted that sediment plumes from the two proposals may coalesce and could extend over a maximum area of one spring tidal excursion ellipse. However, the applicant considered that any overlap would be minimal given that both plumes would be on the same tidal axis.
- 13.2.36. The applicant noted that remobilised and redistributed material from the M&MTA project may reach the south edges of the West of Copeland MCZ, the West of Walney MCZ but at levels indistinguishable from background levels. Further, the Fylde MCZ and Ribble Estuary Site of Special Scientific Interest designations would be directly affected with sedimentation as the M&MTA project bisects these designations.
- 13.2.37. The applicant considered that there were no potential pathways for the sediment plumes to contribute to the West of Copeland MCZ and the West of Walney MCZ due to the alignment of the tidal axis and the distances from the proposed development. Furthermore, there would be no interaction in relation to suspended sediments for the Ribble Estuary's designations due to distance.
- 13.2.38. As noted in paragraph 13.2.26 there would be the potential for there to be project-alone effects on the Fylde MCZ and the Annex I sandbank. The applicant maintained, however, that suspended sediments would be advected on the same time and the majority of sedimentation would occur in close proximity to the individual activity.
- 13.2.39. The applicant maintained [\[REP5a-013\]](#), paragraph 7.403] that due to *“the limited spatial extent, rate of dispersal and the temporary and transient nature of these impacts, cumulative effects were not considered to be greater than the effects assessed separately”* for the proposed development and the M&MTA project.
- 13.2.40. In light of the above, the applicant considered that in assessing key interactions and additive effects between the proposed development and the M&MTA project, there would be no effects with impacts of a greater significance than as assessed for either project. No effects were significant in EIA terms [\[REP5a-015\]](#), table 7.29].
- 13.2.41. Moving on to the ‘all projects assessment’, for construction effects, the applicant maintained these would be limited to the M&MTA, Morgan OWF, Mona OWF and Awel y Môr OWF schemes. Due to the distances to Morgan and Awel y Môr being outside a spring tidal ellipse the applicant considered

that construction phase activities would not be anticipated to coalesce with the suspected sediment plumes. The applicant, therefore, did not assess these further.

- 13.2.42. The Mona OWF would be approximately 10km from the proposed development, and as set out above, the M&MTA project includes the application site as well as additional area. Consequently, the sediment plumes for these projects and the proposed development could coalesce. The applicant indicated that as any suspected sediments would be advected on the same tide, any overlap would be minimal, and the majority of sedimentation would be in close proximity to each activity. The applicant believed that any changes in seabed thickness would be minimal and would be redistributed to indistinguishable levels over successive tides.
- 13.2.43. In light of this, the applicant believed that cumulative effects would be of no greater significance than the proposed development alone and would be 'negligible adverse' and thus not significant in EIA terms. The applicant considered that decommissioning activities would be similar to those of construction and also would be 'negligible adverse' and thus not significant in EIA terms [[REP5a-015](#), paragraphs 7.420 and 7.421].
- 13.2.44. In relation to operation and maintenance, the applicant considered that there was potential for cumulative effects to the wave, tidal current and sediment transport regimes because of multiple developments in the study area.
- 13.2.45. The applicant looked at potential cumulative effects with operational OWFs, proposed OWFs and the M&MTA, maintenance activities for existing cables and pipelines, marine aggregate dredging, disposal sites and carbon capture storage sites. In all cases the effects have been assessed as 'no change' to 'negligible adverse' and therefore not significant in EIA terms.
- 13.2.46. The applicant considered that there would be no transboundary effects, which, in any event, had been scoped out of the ES [[REP5a-015](#), paragraph 7.452].

Interactions

- 13.2.47. The applicant looked at the inter-relationships with other topics covered by the ES. These are set out in table 7.30 of chapter 7 of the ES [[REP5a-015](#)]. The interactions themselves are set out in tables 7.31 to 7.33 with a lifetime assessment set out in table 7.34. In relation to both the Fylde MCZ and the Annex 1 sandbanks the applicant concluded that in both phase and lifetime assessments there would be no greater effect than that individually assessed.

Monitoring

- 13.2.48. The applicant set out in the In Principle Monitoring Plan (IPMP) [[REP5-025](#)] monitoring requirements, which would be developed further prior to construction. This would consist of a range of geophysical surveys for

engineering/ asset integrity purposes (including scour protection) and would monitor changes in seabed topography, including scour processes.

13.3. ISSUES CONSIDERED DURING THE EXAMINATION

THE CASE FOR INTERESTED PARTIES

Natural England

- 13.3.1. Natural England (NE) in its relevant representation (RR) [RR-061, reference E10] agreed with the numerical modelling approach and scenarios conducted in relation to hydrodynamics, waves and sediment transport to inform the potential changes in the physical processes study area arising from the construction, operation and decommissioning.
- 13.3.2. It, however, considered [RR-061, reference E11] that seabed preparation activities (unexploded ordnance (UXO) and boulder clearance) had not been included in the assessment of impacts to physical processes. NE advised that physical process due to UXO clearance and boulder clearance should be considered and assessed within an updated ES. Without consideration of these activities, NE considered that there was insufficient information to assess impacts.
- 13.3.3. NE noted that the applicant is proposing to leave scour and cable protection in-situ [RR-061, reference E14 and F12]. It advised that regardless of legislation or of being outside of designated sites, the applicant should aim to remove infrastructure. Decommissioning should aim to remove infrastructure to avoid irreversible (permanent) habitat loss, thus returning the seabed habitat to its pre-developed baseline status as required by the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR).
- 13.3.4. By the end of the examination [REP6-052] NE confirmed that following changes to the relevant ES chapter, boulder disposal would be randomised and located in a similar habitat from which they were taken. It was therefore content with this approach.
- 13.3.5. NE [REP6-052, reference F12] advised that the applicant should consider using scour and cable protection which is readily removable at the time of decommissioning. It would welcome and encourage this to be secured as a commitment. Ideally this would also be included in an Outline Decommissioning Plan submitted to support the consenting phase. However, NE highlighted that it is a requirement to prepare a decommissioning programme under section 105 of the Energy Act 2004. At the end of the examination [REP6-047] it maintained this position.

Marine Management Organisation

- 13.3.6. The Marine Management Organisation (MMO) and Centre for Environment, Fisheries and Aquaculture Science (Cefas) in the MMO's RR [RR-047, paragraph 4.3.9] found it encouraging that outline procedures for the management of mud produced during drilling activities or any material from

the seabed preparation would be disposed of in accordance with the limits of the deemed marine licence for licensed marine activities. This would include disposal location, quantities, measures for waste concrete, and similar materials.

- 13.3.7. The MMO and Cefas noted in [\[RR-047\]](#), paragraph 4.3.10] that if the sandwave clearance material was anticipated to be placed back within the application site then it would require the MMO to designate the area as a disposal site. The MMO confirmed at deadline (D) 5 [\[REP5-076\]](#), paragraph 2.1] that this had occurred.

ISSUES

- 13.3.8. As can be seen from the above, there was little disagreement between the applicant and other interested parties during the examination in relation to marine geology, oceanography and physical processes and that which there was, was effectively resolved by the end.

- 13.3.9. We consider that for marine geology, oceanography and physical processes the main important and relevant issues for reporting are:

- proxy use of Morgan and Mona sites
- depressions from jack-up vessels
- removal of development post decommissioning

Proxy use of Morgan and Mona sites

- 13.3.10. In our ExQ1BEM5 [\[PD-011\]](#) we queried with the applicant whether the Morgan and Mona sites could be considered appropriate proxies for the application site given their different levels of sediment mud content and thus different suspension times. The applicant in its response [\[REP3-068\]](#) indicated that once the sediment is mobilised into suspension in the water column, sediment particles will only travel a maximum distance from the point of disturbance that is equal to the length of the tidal excursion ellipse.
- 13.3.11. It also noted that while the particle sizes were generally smaller for the application site the volumes were lower, in its view, offsetting this. Equally, the range of SSC's experienced from construction would be similar to those experienced during storms (up to 300mg/l). Any disturbance would be temporary or intermittent over an overall cable installation period of 9 to 12 months. It also noted that both NE and MMO are content with this approach.
- 13.3.12. The applicant confirmed in its response to ExQ1BEM10 [\[REP3-068\]](#) that deposited fine sediment would be remobilised on the seabed by subsequent tides and winnowed away until the sandbank reaches equilibrium with the surrounding hydrodynamic conditions. *"The process of fine sediments being transported by tidal currents from the Eastern Irish Sea Mud Belt to the relatively stable sandbanks to the east of the Project is an existing natural process."*

ExA's consideration on proxy use of Morgan and Mona sites

- 13.3.13. We are satisfied on the evidence in front of us that while there are differences in the composition of seabed at the Morgan and Mona sites, they are not so material as to mean that different conclusions should be drawn. We are therefore satisfied with the applicant's approach.

Depressions from jack-up vessels

- 13.3.14. The applicant's approach had utilised evidence from the installation of the Barrow OWF for the length of time that it would take for depressions created by jack-up vessels to remain visible. We queried whether this was justified [PD-011, ExQ1BEM11] if larger vessels would be needed due to the larger turbine blades being proposed for the proposed development.
- 13.3.15. In its response [REP3-068] the applicant acknowledged that it would be likely that larger vessels would be used so that depressions would be likely to remain for a longer period. However, the applicant maintained that as the locations for the jack-ups would be remote from any receptors designated for geomorphological features, there would be no change at these receptors.

ExA's consideration on depressions from jack-up vessels

- 13.3.16. We are satisfied on the evidence in front of us that the while the depressions from larger jack-up vessels would be likely to be larger than those used as part of the evidence base, and thus result in greater displacement, the distance to receptors designated for geomorphological features means that the proposed development would not result in any effects at those receptors.

Removal of development post-decommissioning

- 13.3.17. Through discussions at the examination, the applicant submitted at D4 for the first time an 'Outline Construction Method Statement' (oCMS) [REP4-056] which was subsequently revised with a final version at D6 [REP6-034]. A full offshore construction method statement would be secured in the deemed marine licence in condition 9(1)(d) ([REP6-002, schedule 6, part 2]).
- 13.3.18. In response to NE's comments about the OSPAR requirements, we queried in ExQ3BEM5 [PD-018] which specific provisions require a decommissioning plan, or whether two specific exceptions could apply. In response, NE [REP6-047] confirmed that compliance could be satisfied by leaving monopile foundations in situ, but this would not be the case for cables or scour protection which therefore should be removed. Removal would be likely to result in suspended solids within the water column. NE therefore considered that the decommissioning plan should be secured at this stage.

ExA's consideration on removal of development post-decommissioning

- 13.3.19. We are satisfied that given the requirements of the Electricity Act that this would be dealt with separately and there would be no reason within the considerations of this topic area, to require further assessment. Appropriate regulatory compliance, including with OSPAR, could be secured under these

separate requirements, and therefore this does not need to be resolved at this stage.

ExA's overall consideration of effects on marine geology, oceanography and physical processes

- 13.3.20. Section 5.6 of NPS EN-1 deals with coastal change. In this particular case the only potential interaction would occur with in-combination effects with the M&MTA project. However, given the distances to the coast (circa 30km) and the range of a single tidal ellipse (10km) we are satisfied that there would be no pathway to change.
- 13.3.21. For the same reasons relating to distance, we are satisfied that only a potential effect from the proposed development would be on the Fylde MCZ and the nearby Annex I sandbank designated sites. However, as these designations are characterised by processes that are active along the seabed and not affected by sediment suspended in the water column, we agree with the applicant that there would be no pathway for an effect.
- 13.3.22. Having considered each of the potential construction impacts identified by the applicant in table 7.35 of chapter 7 of the ES [\[REP5a-015\]](#) we are satisfied that due to distance there would either be no pathway of effect, or any such effects would be 'negligible' or 'low'. We are satisfied that the applicant has undertaken an appropriate analysis in setting out these effects and consequently are satisfied that the proposed development would not have a significant effect on these issues. As discussed in other chapters, the removal, including detonation where appropriate, of UXO would be dealt with separately, but notwithstanding this, we are satisfied that an appropriate high level assessment has been carried out.
- 13.3.23. Similarly, we are satisfied the applicant has appropriately identified construction and maintenance effects. Here, there would be no potential effects above a 'negligible' level. Therefore, there would be no significant effects in EIA terms.

13.4. CONCLUSIONS

- 13.4.1. We are satisfied that the applicant has undertaken an assessment of the proposed development as required in NPS EN-1 and NPS EN-3 has taken place for marine geology, oceanography and physical processes, and that no significant effects in EIA terms would be likely to occur.
- 13.4.2. Due to distance, even in combination, the proposed development would have no material effects on coastal processes and would therefore comply with section 5.6 of NPS EN-1. There would be no transboundary effects.
- 13.4.3. Overall, we consider that the proposed development would have neutral effects on marine geology, oceanography and physical processes which is thus neutral in the planning balance.

13.4.4. The proposed development would:

- comply with paragraphs 2.8.112 to 2.8.114 of NPS EN-3 which indicates that the applicant should assess predications of these physical effects, and design appropriate construction techniques to minimise any adverse effects.
- comply with paragraph 2.8.284 of NPS EN-3 which indicates the SoS should be satisfied that foundations will not have unacceptable effects on marine biodiversity and the physical environment.
- comply with paragraphs 2.8.308 and 2.8.309 of NPS EN-3 which, in relation to the physical environment, indicate that account should be taken of indirect effects and that the SoS must be satisfied that the design would reasonably minimise the potential for impact
- comply with NW-CAB-1, NW-WQ-1 and NW-MPA-4 of the NWMP which relate to the burial, where possible, of cables, water quality and seek to prevent significant adverse impacts on designed geodiversity

14. MARINE MAMMALS

14.1. INTRODUCTION

14.1.1. This chapter of the report considers the effects of the proposed development on marine mammals. Marine mammal ecology was identified as a principal issue in our Rule 6 letter [[PD-007](#)].

14.1.2. In our consideration of marine mammals below, we have had particular regard to:

- the requirements of the Overarching National Policy Statement for Energy (NPS EN-1), as set out in Section 5.4 and of the National Policy Statement for Renewable Energy (NPS EN-3), as set out in Section 2.8
- the relevant policies of the North West Inshore and North West Offshore Marine Plan 2021 (NWMP), particularly policies NW-UWN-1, NW-UWN-2 and NW-DIST-1
- any matters prescribed in relation to the development
- any other important and relevant matters, including:
 - [Ministerial Written Statement \(MWS\) on the Marine Environment made on 29 January 2025](#)
 - Policy paper: Reducing marine noise (Department for the Environment, Food and Rural Affairs (Defra), published 21 January 2025)

14.2. THE APPLICATION

14.2.1. Following a thorough consideration of the original application documents and the relevant representations (RR), and prior to the start of the examination, we decided to issue a Rule 9 letter [PD-006] seeking further information and written comments from the applicant relating to marine mammals in respect of:

- Confirmation of the maximum piling duration based on a lower strike rate in the underwater noise assessment and an updated underwater noise assessment taking account of any change in the findings of significance (Natural England (NE) RR [[RR-061](#)] reference (Ref) D11).
- Modelling of a nominal 750 kilogram (kg) unexploded ordnance (UXO) charge weight for the assessment of UXO noise impacts, unless clear evidence is available to demonstrate that a lesser charge weight represents the actual worst case (NE Ref D12).
- Presentation of impact significance for each approach used to determine the marine mammal disturbance range, using the combination of sensitivity and magnitude (percentage of reference population within the disturbance range) and presentation of the cumulative impact significance for cetaceans using the worst-case numbers disturbed, not only the Modelled Population Level Consequences (iPCoD) modelling results (NE Ref D28).
- Clarification of the values in the median impacted as percentage of unimpacted column in Table 11.39. These did not correspond to the

difference between the unimpacted population mean and the impacted population mean. The difference between the two meant in each table that presents iPCoD modelling results, including in the cumulative effects assessment, needed to be presented or the difference between these figures explained. Information also needed to be provided to support the value considered to be most appropriate (NE Ref D32).

- Confirmation of the worst case assessment for benthic ecology, physical processes, marine sediment and water quality impacts due to UXO (NE Ref E11, F9).

14.2.2. The applicant provided responses to the Rule 9 letter [\[PD1-010\]](#) and its 'Response to Relevant Representations' [\[PD1-011\]](#) at Procedural Deadline A (PDA) prior to the start of the examination, with outstanding information and a summary of the information we requested being submitted at deadline (D)1 [\[REP1-079\]](#).

14.2.3. The applicant's assessment of the potential impacts of the development on marine mammals was set out in chapter 11 of the environmental statement (ES) Marine Mammals [\[REP5a-019\]](#) which was supported by a series of figures [\[APP-095\]](#) and five accompanying appendices:

- appendix 11.1 Underwater Noise Assessment [\[REP4-013\]](#)
- appendix 11.2 Marine Mammal Information and Survey Data [\[REP4-015\]](#)
- appendix 11.3 Marine Mammal Unexploded Ordnance Assessment [\[REP4-017\]](#)
- appendix 11.4 Marine Mammal Cumulative Effects Assessment (CEA) Project Screening [\[REP4-019\]](#)
- appendix 11.5 Marine Mammal Consultation Responses [\[APP-069\]](#)

14.2.4. The assessment was informed by, and took into account, the findings and conclusions of other relevant topics and chapters of the ES. Those chapters included:

- chapter 5 (Project Description) [\[REP1-022\]](#) which detailed the parameters used to establish the worst case scenarios for each impact assessed.
- chapter 6 (EIA Methodology) [\[APP-043\]](#) which explained how the realistic worst-case scenarios for each impact were derived from the Project Design ('Rochdale') Envelope (PDE).
- chapter 8 of the ES (Marine Sediment and Water Quality) [\[REP2-010\]](#) which was considered relevant in respect of indirect effects on marine mammals.
- chapter 9 (Benthic Ecology) [\[REP5a-017\]](#) and chapter 10 (Fish and Shellfish Ecology) [\[REP3-016\]](#), which were considered relevant to the marine mammal assessment in respect of effects on habitats and prey species.
- chapter 13 Commercial Fisheries [\[REP3-018\]](#) and chapter 14 Shipping and Navigation [\[REP3-020\]](#) which were also considered relevant to the marine mammal assessment in respect of effects on habitats and prey species.

14.2.5. Other relevant application documents included:

- the Outline Project Environmental Management Plan (oPEMP) [\[REP5a-023\]](#)
- the In Principle Monitoring Plan (IPMP) [\[REP5a-027\]](#)
- the draft Marine Mammal Mitigation Protocol (dMMMP) [\[REP6-019\]](#)
- the Outline Vessel Traffic Management Plan (oVTMP) [\[REP5a-031\]](#)

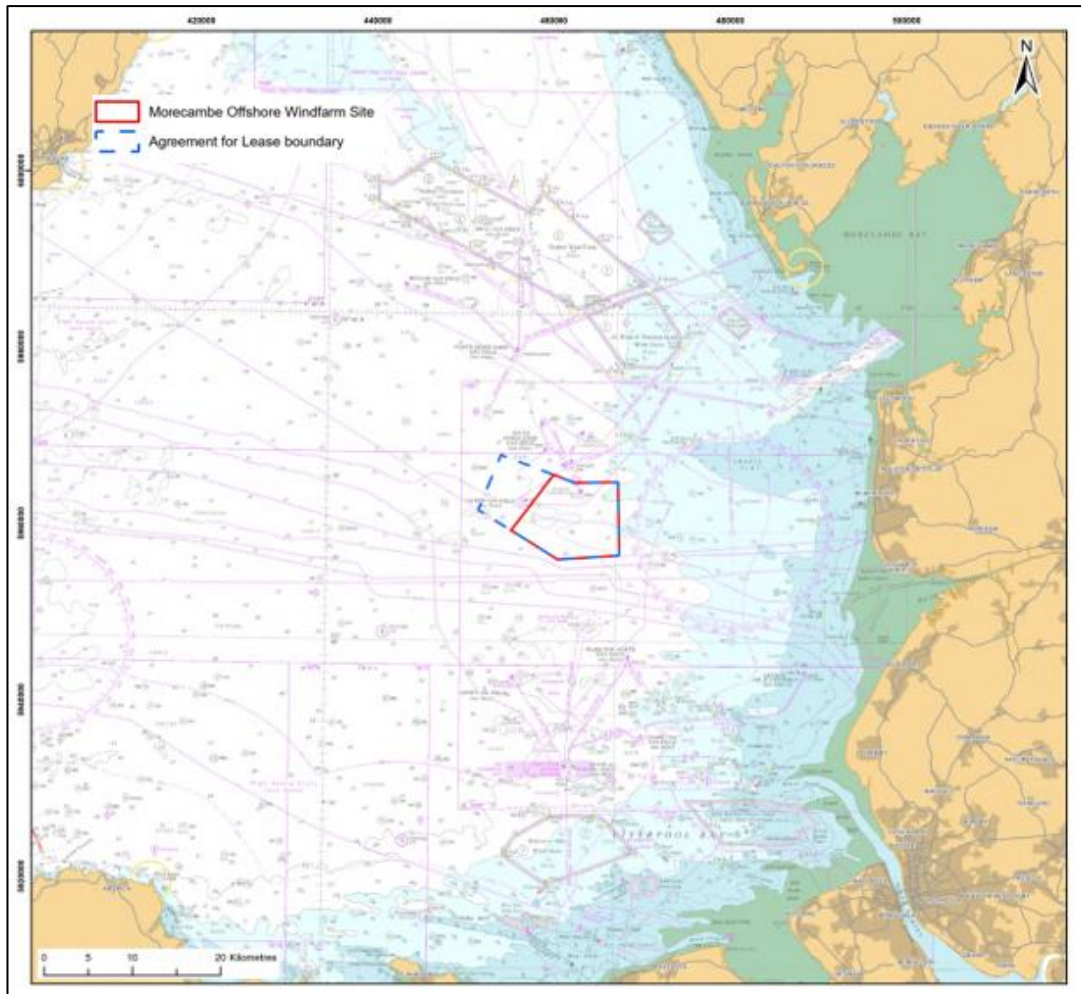
14.2.6. During the examination the applicant updated earlier versions of the above documents and submitted several new documents in response to issues that had been raised by us and by interested parties. Other documents submitted were:

- the applicant's response to the Rule 9 Letter [\[PD-010\]](#)
- outstanding Information from the applicant in response to the Rule 9 Letter [\[REP1-079\]](#)
- Marine Mammals Technical Note 1 (EIA) [\[REP3-060\]](#)
- Outline Underwater Sound Management Strategy (UWSMS) [\[REP5a-042\]](#)
- Report on Interrelationships with Other Infrastructure Projects [\[REP6-030\]](#)
- Commitments Register [\[REP6-032\]](#)
- Outline Construction Method Statement [\[REP6-034\]](#)

BASELINE

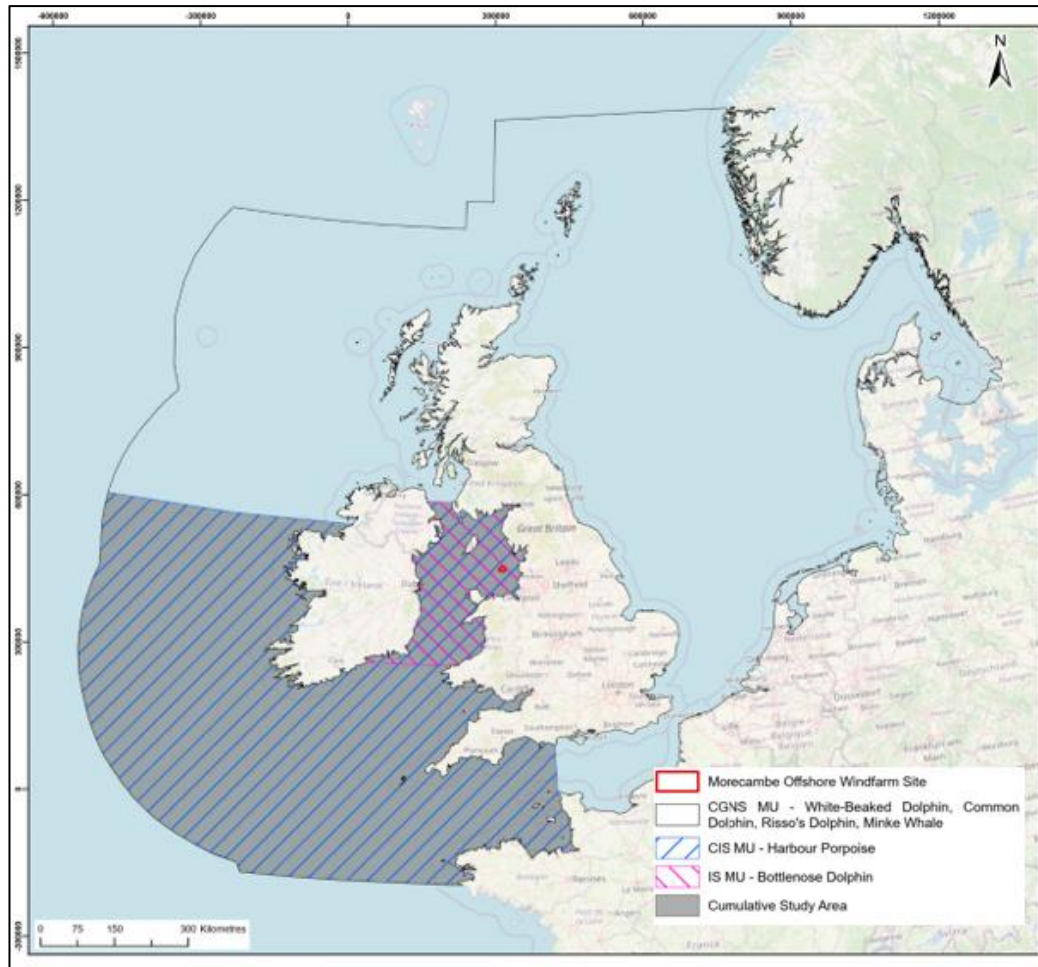
14.2.7. The Agreement for Lease (AfL) boundary, within which the proposed development would be located, was shown on figure 11.1 [\[APP-095\]](#) which is shown as Figure 12 below.

Figure 12: Application site boundary and agreement for lease area (extract from Figure 11.1 of [APP 095])



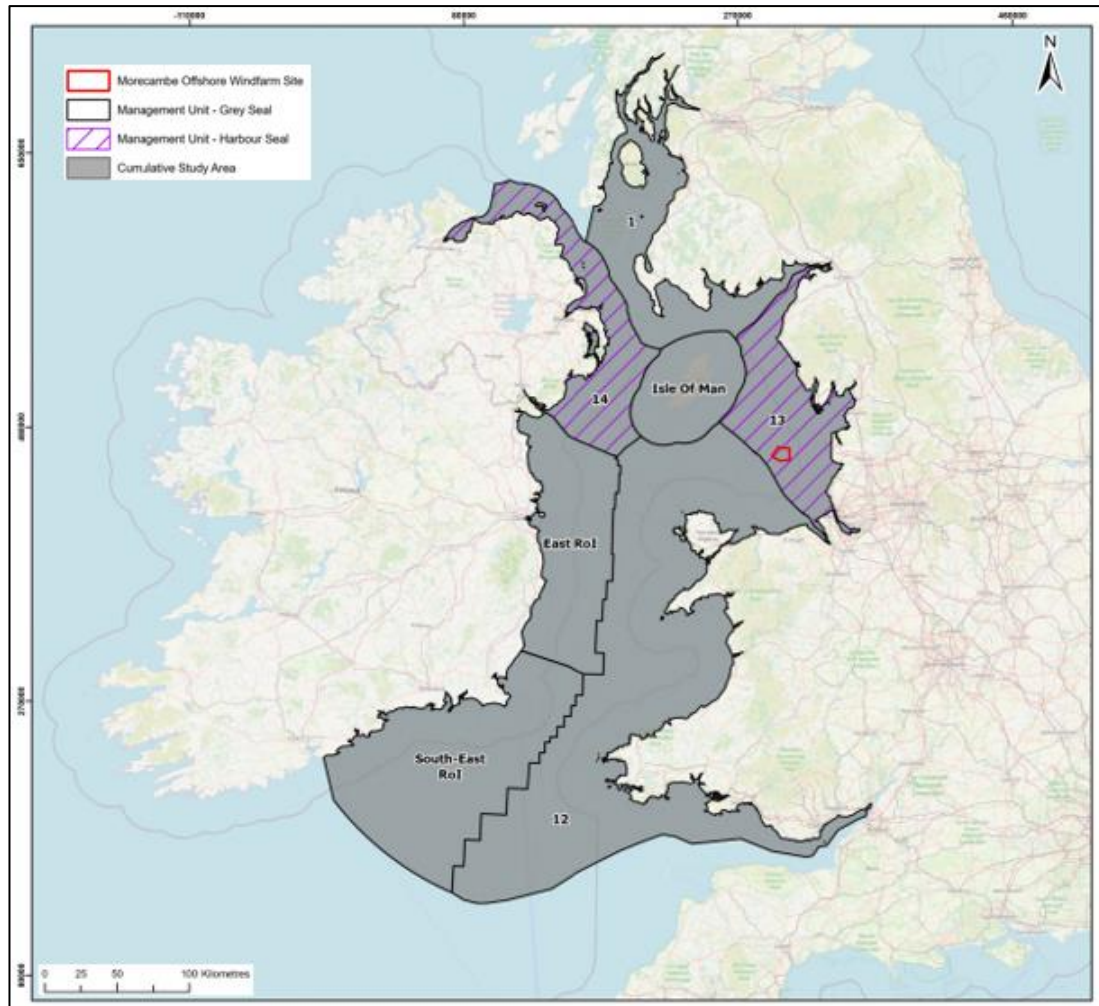
- 14.2.8. The study area for each marine mammal species scoped into the assessment was defined based on the relevant marine mammal management units (MU) as defined by the Inter-Agency Marine Mammal Working Group (IAMMWG).
- 14.2.9. The MUs used for the purposes of the marine mammal assessment were aligned as far as possible with the International Council for the Exploration of the Sea (ICES) subareas and/ or divisions used for the implementation of fisheries policy.
- 14.2.10. For cetaceans (harbour porpoise, bottlenose dolphin, common dolphin, Risso's dolphin, white-beaked dolphin and minke whale) the relevant MU were set out in chapter 11 of the ES [REP5a-019, paragraph 11.12] and also in appendix 11.2 Marine Mammal Information and Survey Data [REP4-015, table 1.1]; and their locations were shown in appendix 11.2 Marine Mammal Information and Survey Data [REP4-015, plates 1.1, 1.2 and 1.3]. The study area for the cumulative environmental assessment (CEA) was shown in appendix 11.4 Marine Mammal CEA Project Screening [REP4-019, figure 2.1] and is shown as Figure 13.

Figure 13: Cumulative study area for cetacean (source extract from Figure 2.1 of [\[REP4-019\]](#))



14.2.11. For grey seal and harbour seal, the relevant MU were listed in chapter 11 of the ES [\[REP5a-019\]](#), paragraphs 11.13 and 11.14] and their locations are shown in appendix 11.2 Marine Mammal Information and Survey Data [\[REP4-016\]](#), plates 1.4 and 1.5 (UK) and plate 1.6 (Republic of Ireland)]. The study area for the CEA is shown in appendix 11.4 Marine Mammal CEA Project Screening [\[REP4-019\]](#), Figure 2.2] and is shown as Figure 14.

Figure 14: Cumulative study area for grey seals and harbour seals (source extract from Figure 2.2 of [\[REP4-019\]](#))



Realistic worst-case scenarios

- 14.2.12. The worst case scenarios used in the assessment of construction phase and operation and maintenance phase impacts were summarised in chapter 11 of the ES [\[REP5a-019\]](#), table 11.1]. The applicant derived these from the PDE in accordance with chapter 6 of the ES 'EIA Methodology' [\[APP-043\]](#) based on the project parameters in chapter 5 of the ES 'Project Description' [\[REP1-023\]](#).
- 14.2.13. It was noted by the applicant that
- the detail and scope of the decommissioning works would be determined by the relevant legislation and guidance in operation at that time.
 - decommissioning arrangements would be detailed in a decommissioning programme to be agreed in advance with the relevant authority.
 - for the purposes of the worst-case scenario, the impacts would be comparable with construction phase impacts.

Baseline data sources

- 14.2.14. Aerial surveys were undertaken to provide site-specific information for the marine mammal impact assessment, covering the AfL area plus a custom buffer of 4km to the south and west, and 10km to the east and north due to the proximity of the Liverpool Bay/ Bae Lerpwl Special Protection Area (SPA) (Liverpool Bay SPA). Additional existing data sources were summarised in chapter 11 of the ES [\[REP5a-019\]](#), table 11.7].
- 14.2.15. A description of the existing environment in respect of population density, distribution and abundance of each of the marine mammal species scoped into the assessment was provided [\[REP5a-019\]](#), section 11.5], and the reference population, extent, summer density estimate and sources of information were summarised in chapter 11 of the ES [\[REP5a-019\]](#), tables 11.14 and 11.15].
- 14.2.16. This information was supplemented by additional detail on the marine mammal baseline in appendix 11.2 Marine Mammal Information and Survey Data [\[REP4-016\]](#). This included information on the applicant's approach to population modelling and a review of potential disturbance to marine mammals from underwater noise during piling.
- 14.2.17. Limitations on data, chiefly related to the highly mobile nature of marine mammals, were acknowledged and discussed in the ES [\[REP5a-019\]](#), section 11.4.6]. In particular, each survey was considered essentially a 'snapshot' of existing conditions.

MITIGATION

- 14.2.18. The embedded mitigation measures were outlined and summarised in chapter 11 of the ES [\[REP5a-019\]](#), paragraphs 11.20 to 11.22 and table 11.2]. These included:
- no concurrent piling to be undertaken
 - soft-start and ramp-up piling to be used, to allow mobile species time to move away before maximum hammer energy is used
 - best practice techniques to minimise water pollution as set out in the oPEMP [\[REP5a-023\]](#) to be agreed with the Marine Management Organisation (MMO) prior to construction
 - burying cables where possible to reduce electromagnetic field effects
- 14.2.19. The applicant also committed to a dMMMP [\[REP6-019\]](#) for underwater noise resulting from UXO and piling activities, which would be secured by condition 9(1)(i) in the deemed marine licence (DML) [\[REP6-002\]](#), schedule 6].
- 14.2.20. The dMMMP identified measures which would need to be implemented or considered in respect of UXO clearance, but the applicant noted that there was insufficient detailed information in respect of quantity and size of UXO present within the area of the proposed development. Consequently, as agreed with NE and the MMO in expert topic group (ETG) meetings, the applicant proposed that any application for UXO clearance would be made to the MMO post-consent as part of a separate marine wildlife licence

application. This commitment was outlined in appendix 11.3 [REP4-017] and would be secured during implementation by way of the UWSMS [REP5a-042, section 10.2] cited in DML condition 20 [REP6-002, schedule 6].

14.2.21. An oVTMP [REP5a-031] was also proposed, secured by condition 9(1)(j) in the draft DML [REP6-002], which included mitigation measures during both construction and operation such as passage planning to minimise vessel movements, using set routes and considering minimum operating distances from seal haul-out sites to reduce collision risk. Additional information would be available post-consent when construction ports had been identified.

14.2.22. Further details of the additional mitigation proposed are given in [REP5a-019, paragraphs 11.23 and 11.24, and table 11.3].

ASSESSMENT OF EFFECTS

Assessment criteria

14.2.23. The key terms used in the marine mammals assessment were defined in chapter 6 of the ES 'EIA Methodology' [APP-043] and were referred to in chapter 11 of the ES [REP5a-019, section 11.4.3]. Definitions of high, medium, low and negligible receptor sensitivity, receptor value and magnitude of impact were given in tables 11.8, 11.9 and 11.10.

14.2.24. The potential significance of effect was established using a matrix [REP5a-019, table 11.11] to arrive at a major, moderate, minor or negligible significance of effect, or of no impact and therefore no change (table 11.12).

14.2.25. Appendix 11.3 Marine Mammal Unexploded Ordnance Assessment [REP4-017] provided an assessment of potential auditory injury and disturbance impacts on marine mammals during UXO clearance at the application site. The applicant noted that the approach was agreed with NE and the MMO at the ETG meeting in August 2022 and reflected in the scoping opinion.

14.2.26. As well as piling and UXO clearance, appendix 11.1 Underwater Noise Assessment [REP4-013] provided a high level assessment of the potential for underwater noise arising from a number of sources including cable laying, trenching, rock placement, drilling, dredging, vessel noise and operational wind turbine generator (WTG) noise.

14.2.27. Tables 11.14 and 11.15 of chapter 11 of the ES [REP5a-019] set out the reference populations and density estimates for the various species that were used in the assessments.

14.2.28. The applicant assessed each marine mammal receptor for sensitivity to underwater noise and summarised the results [REP5a-019, table 11.16].

14.2.29. Permanent threshold shift (PTS) is a permanent decrease in a receptor's ability to hear sounds. It arises due to a permanent increase in the minimum sound level which can be heard by the receptor, so it is effectively a

permanent hearing loss. It may be caused by prolonged or intense exposure to high noise levels such as those arising from piling activity or UXO clearance. All cetacean receptors were assessed as of high sensitivity in respect of PTS because:

- they rely on sonar for navigation, communication and finding prey
- any PTS would be permanent
- they were considered to have very limited capacity to avoid the effects
- they were considered unable to recover from the effects

14.2.30. Although pinniped (seal) receptors do not use sound for finding prey, and are able to hold their heads above water during loud noises, a precautionary approach was adopted by the applicant, and they were also assessed as having high sensitivity in respect of PTS.

14.2.31. Temporary threshold shift (TTS) is a temporary decrease in a receptor's ability to hear sounds, which recovers over time once exposure to the noise has stopped. The applicant adopted a precautionary approach and assessed all receptors as having medium sensitivity to TTS, although the applicant's case was that any TTS would be temporary, and the receptors would recover after the noise stopped. It was also assumed that the receptors would have only limited capacity to avoid, adapt to, tolerate or recover [[REP5a-019](#), table 11.8].

14.2.32. In respect of disturbance, sensitivity was assessed as low for all dolphin species (except harbour porpoise), and also for grey seal and harbour seal. The applicant's case was that harbour porpoise has been shown to be more sensitive to construction activities, and minke whale is more likely to be disturbed by the frequencies of sound emitted during construction, so on a precautionary basis the applicant assessed these species as having medium sensitivity.

14.2.33. Potential inter-relationships between marine mammal impacts and other impacts assessed in the ES were considered for both construction and operation as part of the overall assessment [[REP5a-019](#), table 11.117].

14.2.34. Potential interaction between the various marine mammal impacts was also considered as part of the overall assessments [[REP5a-019](#), tables 11.118, 11.119 and 11.120].

14.2.35. Underwater noise modelling was undertaken to predict likely noise levels, impact ranges and numbers affected for:

- different piling hammer energies
- soft-start, ramp-up profile and strike rate
- duration of piling
- receptor swim speeds

14.2.36. The significance of effect for each impact was assessed by considering sensitivity, receptor value and magnitude of impact, using the matrix in table 11.11, and also assumed that best practice measures outlined in Chapter 11

of the ES [REP5a-019, section 11.3.3] were followed. Mitigation was then considered in order to arrive at the residual significance of effect both during the construction phase and the operational phase of the proposed development.

Construction effects

14.2.37. The applicant assessed the following construction impacts:

- PTS and TTS from underwater noise during piling
- disturbance from underwater noise during piling
- TTS and disturbance from underwater noise during other construction activities
- TTS and disturbance from underwater noise from vessels
- barrier effects due to underwater noise
- increased collision risk with vessels
- changes in prey resources
- changes in water quality
- disturbance to seals at haul-out sites

14.2.38. In respect of disturbance or behavioural effects from underwater noise during piling (construction impact 2), the applicant noted in chapter 11 of the ES [REP5a-019, section 11.6.3.2] that “There are currently no commonly agreed thresholds, or criteria, for the behavioural response and disturbance of marine mammals, therefore, it is not possible to conduct underwater noise modelling to predict impact ranges”.

14.2.39. Where the impact was assessed as significant in environmental impact assessment (EIA) terms, additional mitigation was proposed. There were no significant residual effects predicted to result during construction.

Operation and maintenance effects

14.2.40. The applicant assessed the following operation and maintenance impacts:

- TTS and disturbance from underwater noise of operational WTGs
- TTS and disturbance from underwater noise during maintenance activities
- TTS and disturbance from underwater noise due to presence of vessels
- barrier effects from underwater noise during operation and maintenance
- barrier effects from physical presence of windfarm infrastructure
- increased collision risk with vessels
- changes to prey resources
- changes to water quality
- disturbance of seals at haul-out sites: operation and maintenance, and vessel movement

14.2.41. Where the impact was assessed as significant in environmental impact assessment (EIA) terms, additional mitigation was proposed. There were no significant residual effects predicted to result during the operation and maintenance phase of the proposed development.

Decommissioning effects

- 14.2.42. The applicant noted that it had not been possible to provide details of the methods that would be used during decommissioning, but the impacts were expected to be comparable with those during construction, except that there would be no piling activity or UXO clearance [REP5a-019, section 11.6.5, paragraphs 712, 713].
- 14.2.43. An indicative assessment of the expected impacts for all species was carried out and the results presented in chapter 11 of the ES [REP5a-019, table 11.78]. There were no significant residual effects predicted to result during the decommissioning of the proposed development.

Cumulative effects

- 14.2.44. The 'combined assessment' was described in section 11.7.3.1 of the ES [REP5a-019] and the results shown in table 11.80. No combined effects were greater than 'minor adverse' (not significant in EIA terms) and the applicant concluded that there was ... *"no identification of effects that would result in impacts of greater significance than assessed for either the Project or Transmission Assets"*.
- 14.2.45. The 'all projects assessment' was based on both the impacts shown in table 11.79 of chapter 11 of the ES [REP5a-019] and the other plans and projects identified in Appendix 11.4 Marine Mammal CEA Project Screening [REP4-019], which described the process of identifying those projects, plans and activities with the potential to interact with the proposed development, and which were therefore included in the 'all projects' assessment. Both the Planning Inspectorate (Inspectorate) and the NE/ Defra tiering systems were used [REP4-019, paragraphs 13-17 and table 2.1]. The projects, plans and activities identified were:
- other offshore windfarms, whether under construction, in operation or being decommissioned
 - oil and gas development, operation and decommissioning
 - marine renewable energy developments
 - aggregate extraction and dredging
 - licensed disposal sites
 - planned construction of subsea cables and pipelines
 - potential port and harbour developments
 - geophysical and seismic surveys
 - UXO clearance
- 14.2.46. Commercial fishing activity and shipping (noise and vessel collision) were not considered in the CEA, and further information and justification for this was provided in appendix 11.4 Marine Mammal CEA Project Screening [REP4-019]. The applicant also noted in table 5.2 of appendix 11.4 that collision risk and disturbance from underwater noise had been screened out of the CEA.

- 14.2.47. The results of the ‘all projects assessment’ were presented and discussed in section 11.7.3.2. The applicant concluded that all cumulative effects would be ‘minor adverse’ or less and therefore not significant in EIA terms.
- 14.2.48. The results of the cumulative assessment were shown in table 11.122. Additional mitigation measures were proposed where necessary. There were no significant cumulative residual effects.

Transboundary effects

- 14.2.49. For marine mammals, due to their highly mobile nature, the potential for transboundary effects was assessed in chapter 11 of the ES [[REP5a-019](#), section 11.4.5] by considering the reference populations in relevant MU and potential linkages to other countries.
- 14.2.50. The applicant considered that there was the potential for the proposed development to affect the Isle of Man [[REP5a-019](#), section 11.8.1] in terms of effects on the species listed in table 11.116. The applicant further explained that, due to the Isle of Man’s status as a British Crown Dependency, its protected areas do not come within the scope of the RIAA and so the applicant had considered the potential transboundary effects of the proposed development on the Isle of Man Marine Nature Reserves (MNR) in the ES [[REP5a-019](#), section 11.8.1, paragraph 1073].
- 14.2.51. The applicant provided an assessment of the potential for adverse effects, bearing in mind that the MNRs do not have specific conservation objectives but more general objectives such as conservation of specific species or habitats [[REP5a-019](#), section 11.8.1 paragraph 1074]. It concluded that for the project alone and cumulatively “the likelihood of significant transboundary effects ... was ... low for all species given mitigations required by all projects.” [[REP5a-019](#), section 11.8.1, paragraph 1090].
- 14.2.52. Effects on SPAs and Ramsar sites were discussed separately in the RIAA [[REP5a-009](#), paragraph 12.510] and are reported on in the HRA chapter of this report.

Interrelationships

- 14.2.53. A summary of the main interrelationships was presented in table 11.117, noting that “*potential inter-relationships are already covered as part of the marine mammal assessments within this ES.*” [[REP5a-019](#), section 11.9, paragraph 1091].

Interactions

- 14.2.54. Areas of potential interaction of impacts were presented in table 11.118 for the construction and decommissioning phases, and in table 11.119 for operation and maintenance phase.
- 14.2.55. A lifetime assessment was also undertaken, which considered both the impact interactions identified and the effects on receptors for all phases of the proposed development.

- 14.2.56. The result of the assessment was that the highest significance of effect level for both the phase assessment and the lifetime assessment was ‘minor adverse’, which is not significant in EIA terms and no greater than for the individually assessed impact [REP6-009, table 11.120].

Potential monitoring requirements

- 14.2.57. The applicant described the monitoring requirements in the IPMP [REP5a-027], noting that these “*would be further developed and agreed with stakeholders prior to construction taking account of the final detailed design of the Project.*” [REP5a-019, section 11.12, paragraph 11.1119].

Assessment summary

- 14.2.58. A summary of the predicted effects on marine mammals was presented in table 11.121, which showed that all effects were assessed as either ‘negligible’ or ‘minor adverse’, which is not significant in EIA terms.

The Applicant’s closing position

- 14.2.59. Following the discussions as set out in section 1.4 of this report, the applicant’s closing position at the end of the examination was as follows.
- 14.2.60. At section 2.3 of its summary and signposting document [REP6-040], the applicant concluded that “*following mitigation, there would be no significant effects arising from the Project-alone or cumulatively with other projects/plans.*”.
- 14.2.61. However, the applicant’s summary and signposting document [REP6-040, table 2.3] gave details of remaining areas of disagreement between the applicant and the MMO, NE and National Resources Wales (Advisory) (NRW(A)) relating to:

- cumulative/ in-combination assessment methodology
- mitigation – noise abatement measures
- mitigation – temporal overlap with other projects
- marine mammal monitoring

Cumulative and in-combination assessment methodology

- 14.2.62. In [REP6-040, table 2.3] the applicant acknowledged the methodology limitations and had updated chapter 11 of the ES [REP5a-019], but had been unable to confirm directly with the Joint Nature Conservation Committee (JNCC) whether matters had been resolved. However, the applicant noted that the “*JNCC state they do not anticipate there to be adverse effects on site integrity*”.

Mitigation – noise abatement measures

- 14.2.63. The applicant also said in its summary and signposting document [REP6-040, table 2.3] that it was committed to “*reducing noise impacts and has committed to [noise abatement systems] NAS ... in the Outline UWSMS ...final mitigation should be agreed for the final design of the Project ... It is*

not proportionate or reasonable to take a blanket approach that all or any piling should only be undertaken with the use of NAS without understanding the likely noise (and impacts) of the final design.”.

- 14.2.64. The applicant further stated [[REP6-040](#), table 2.3] that the oUWSMS and dMMMP would provide the mechanism to secure primary or secondary mitigation (or both) as required, and said [[REP6-040](#), table 2.3] that it had *“included a sub-paragraph within the Outline UWSMS condition in the [draft development consent order] dDCO (the wording of which has been agreed with stakeholders) which provides for details of the noise reduction methods and/or NAS to be included in the final UWSMS ... However, it is considered that this sub-paragraph is unnecessary since the mitigation mechanism is effectively secured in the Outline UWSMS and draft MMMP and therefore its inclusion on the face of the [development consent order] DCO would be an unnecessary repetition”.* The wording is as follows [[REP5a-002](#)] *“(2) Where driven or part-driven pile foundations are proposed to be installed, the underwater sound management strategy submitted under sub-paragraph (1) must include details of the noise reduction measures or noise abatement system (or both) that will be utilised to manage sound from those piling activities”.*

Mitigation – temporal overlap with other projects

- 14.2.65. The applicant said in [[REP6-040](#), table 2.3] that it had committed to not undertaking any UXO clearance which might be required at the same time as foundation piling for the proposed development (secured in the oUWSMS [[REP5a-042](#)]) and had strengthened commitments to using existing vessel routes (secured in the outline VTMP [[REP5a-031](#)]), and did not consider *“that further coordination with other projects ... is required or proportional to the effects”.*

Marine mammal monitoring

- 14.2.66. The applicant also said [[REP6-040](#), table 2.3] that its commitments had been *“clarified in the Deadline 6 submission of the IPMP and is considered to resolve comments from NE in regard of disturbance monitoring during construction”.* Data would also be collected by aerial survey alongside monitoring of over-wintering red-throated diver. Given that NRW(A) was now content and had not sought additional monitoring [[REP4-074](#), paragraph 117], winter-only was considered sufficient as it was intended to provide additional information only and the IPMP provided for further monitoring if this were considered necessary.
- 14.2.67. The applicant’s position [[REP6-040](#), table 2.3] was that *“Further monitoring is not considered proportionate ... in respect of the effects identified and the mitigation that would be applied.” and that “The potential for further monitoring is included in the IPMP should this be determined to be required by the SoS”.*

Compliance with policy requirements

- 14.2.68. At section 2.3.5 of its summary and signposting document [\[REP6-040\]](#) the Applicant set out how it considered the marine mammal assessment complies with the requirements of NPS EN-1 and NPS EN-3.

14.3. ISSUES CONSIDERED DURING THE EXAMINATION

THE CASE FOR INTERESTED PARTIES

Marine Management Organisation

- 14.3.1. The MMO made a RR [\[RR-047\]](#) which noted that *“All relevant/applicable marine mammal functional hearing groups have been considered in the underwater noise modelling assessment ... all relevant impacts in regard to underwater noise have been scoped in for assessment.”*
- 14.3.2. However, the MMO made a number of detailed comments in relation to:
- impact ranges
 - maximum pile diameter for multi-legged pin piles
 - bubble curtains
 - pre-piling search and soft-start procedures
 - discrepancies in tables 4.8 and 4.9 relating to measurement criteria
 - how high order clearance impacts have been assessed
 - behavioural disturbance
 - acoustic deterrent device (ADD) activation times in relation to UXO clearance
- 14.3.3. The MMO had no major comments on the oPEMP or the IPMP.
- 14.3.4. The MMO’s WR [\[REP1-096\]](#) supported NE’s position in respect of the commitment to NAS and added further detail in Table 1. MMO also reiterated its position in Table 1 (RR-047-33) that EDR, although acknowledged to be conservative, *“would be a suitable precautionary option ... given the uncertainties surrounding the use of TTS as a proxy for disturbance.”* [\[REP1-096\]](#), table 1 references RR-047-32 and 33].
- 14.3.5. The MMO also confirmed at paragraphs 2.10 and 2.11 of its WR that it agreed with the applicant’s approach whereby UXO clearance would be developed and agreed post-consent as part of a marine licence application.
- 14.3.6. In its closing submissions [\[REP6-046\]](#), the MMO noted at paragraph 2.4 that the applicant intends to refine mitigation in respect of underwater noise through finalisation of the dMMMP and the oUWSMS and that NAS would likely be required for all piling in the coming years. The MMO welcomed the commitment by the applicant in relation to noise reduction methods. At paragraph 5.12 the MMO said that it was content with the applicant’s commitment to NAS, and to ADD use within recommended time limits.
- 14.3.7. The MMO was satisfied (paragraphs 3.12, 5.13 and 5.14) with the applicant’s without prejudice proposed wording of draft DML (dDML) condition 20(2) which stated in respect of piling activities that the UWSMS *“must include*

details of the noise reduction measures or noise abatement system (or both) that will be utilised to manage sound from those piling activities” and noted that this matter would be agreed if the condition remained on the face of the DML.

- 14.3.8. At paragraph 5.2 of its closing submissions [[REP6-046](#)], the MMO stated that it had no further comments on the applicant’s revisions to chapter 11 of the ES [[REP5a-019](#)], and was content with the updated oPEMP [[REP5a-023](#)] and oVTMP [[REP5a-031](#)].
- 14.3.9. At paragraph 5.9 of its closing submissions [[REP6-046](#)], the MMO said that overall it was content with the IPMP [[REP5a-027](#)] and with the proposed without prejudice update in respect of monitoring drafted by the applicant in section 2.5, noting that the applicant *“does not consider these conditions of additional monitoring to be necessary for consent”*.
- 14.3.10. At paragraphs 5.10 and 7.2, the MMO said that it was content with the updates to the MMMP and *“is content that the requirement for breaks in piling would confirmed through the finalisation of the MMMP”*.
- 14.3.11. At paragraph 5.11, the MMO said that overall, it was content with the updates to the oUWSMS.

Natural England

- 14.3.12. NE submitted a combined RR and Written Representation (WR) [[RR-061](#)] which included a Principal Areas of Disagreement Summary (PADS), colour-coded as follows:
- ‘red’: NE considers that unless these issues are resolved it will have to advise that an adverse effect on integrity (AEoI) cannot be ruled out and that they are unlikely to be resolved during the examination
 - ‘amber’: NE does not agree with the applicant’s position or approach and could become Red if not addressed or resolved
 - ‘yellow’: NE does not agree with the applicant’s position or approach but is satisfied that for this project it is unlikely to make a material difference to the outcome
 - ‘green’: NE is in broad agreement with the applicant’s approach and has no significant outstanding concerns.
- 14.3.13. The principal issue [[RR-061](#), Ref: P6] relating to marine mammals which concerned NE was that the applicant had not made a commitment to use NAS during construction. NE said that the applicant should commit fully to using NAS as mitigation to reduce both injury and disturbance, and that there should be a DCO requirement or a DML condition requiring consideration of NAS in the MMMP. This was a ‘red’ issue and was detailed in Appendix D to the RR [[RR-061](#), Table 1 Ref: D1].
- 14.3.14. NE also had ‘amber’ concerns [[RR-061](#), Appendix D Table 1, with NE references] relating to:
- D2: seal baseline characterisation

- D3: sensitivity values for certain impact pathways
- D4: the project-alone assessment of disturbance impacts from piling
- D5: residual PTS risk not sufficiently reduced
- D6: cumulative disturbance assessment conclusions
- D7: the in-combination assessment habitats regulations assessment (HRA), which was based on the CEA
- D8: lack of detail in the IPMP
- D9: some aspects of the MMMP

These were detailed in Appendix D Table 2.

14.3.15. There were discussions between NE and the applicant and the submission of various documents throughout the examination. At the end of the examination, in section 4 of its closing statements for topics with unresolved issues [\[REP6-047\]](#), in relation to condition 20(2), NE welcomed *“the inclusion of a condition ... that requires the use of noise reduction and/or abatement for driven and part-driven piles”* which it said would *“be effective in reducing the effect of several issues in addition to significantly reducing the risk of direct injury from noise”*.

14.3.16. NE had the following outstanding concerns:

- the proposals for monitoring of marine mammal responses to noisy activities were not adequate: see NE response to ExQ3BEM2 [\[REP5a-071\]](#) which expected updates from the applicant at D6
- construction and operation ports had not been confirmed so some uncertainty remained in respect of the effectiveness of the vessel disturbance proposals in practice
- there was no commitment to temporal measures to avoid concurrent piling and/ or UXO clearance with other projects

but said that *“whilst a resolution to these issues should be sought prior to construction, they need no longer be considered material considerations for the outcome of this Examination.”*

14.3.17. By the close of the examination, NE noted that the applicant had modified condition 20 in respect of NAS [\[REP6-002\]](#) to meet its requirements. Consequently, NE’s PADS statement [\[REP6-050\]](#) issue P6 (marine mammals) showed as ‘green’ “Resolved at D6” and no ‘red’ issues remained in NE’s Risk and Issues Log [\[REP6-052\]](#).

Natural Resources Wales

14.3.18. NRW(A) outlined its interest in marine mammals and cumulative and in-combination impacts relating to Welsh-designated sites [\[RR-062\]](#).

14.3.19. Further information, including a response to information submitted by the applicant at PDA, was provided in the NRW(A) WR [\[REP1-099\]](#), which identified the key issues as:

- the conclusions of the CEA (and hence the in-combination assessment). In particular NRW(A) disagreed with:

- the applicant's modelling and CEA assessment methodology
- the effect ranges of ADDs
- the applicant's vessel noise assessment
- the use of a TTS threshold to estimate the number of dolphin species disturbed other than by UXO clearance
- the applicant's decision to screen PTS and underwater noise from maintenance and decommissioning activities out of the CEA, noting reliance on the MMMP and screening out of shipping
- the proposed underwater noise mitigation measures. NRW(A) sought:
 - stronger commitments to mitigation options such as bubble curtains and other NAS in the dMMMP
 - consideration of software developed by the Offshore Renewables Joint Industry Programme (ORJIP) Range Dependent Nature of Impulsive Noise (RaDIN) project to test the effects of altering the temporal pattern of pile strikes
 - include measures in the oVTMP to mitigate disturbance from vessel noise

14.3.20. The NRW(A) D6 submission [\[REP6-053\]](#) noted concerns with UXO but that, following amendments to the dMMMP [\[REP5a-029\]](#) and to chapter 11 of the ES [\[REP5a-019\]](#), said *"this issue can be considered closed"*.

14.3.21. The NRW(A) D6 submission [\[REP6-053\]](#) also expressed satisfaction that the applicant's updates to chapter 11 of the ES [\[REP5a-019\]](#) meant that the issues of repeated disturbance events, the use of a 1% threshold to determine the significance of behavioural disturbance, and a minor issue relating to emerging marine noise policy could now be considered closed, and that an Effective Deterrence Radius (EDR) was now defined which *"now aligns with JNCC 2020 and Sinclair et al 2023"*.

14.3.22. The NRW(A) D6 submission [\[REP6-053\]](#) also referred to minor technical issues relating to (paragraph 74) cumulative effects from underwater noise due to piling activities, but said that these issues were now considered closed following amendments to chapter 11 of the ES and the oUWSMS [\[REP5a-042\]](#).

14.3.23. The Statement of Common Ground (SoCG) between the applicant and NRW(A) [\[REP6-036\]](#) records all matters relating to marine mammals as agreed, with caveats relating to limitations of the applicant's assessment methodology.

Isle of Man Government (Territorial Sea Committee)

14.3.24. The Isle of Man Government (Territorial Sea Committee) (IoMTSC) [\[RR-031\]](#) noted "the additions regarding specific Manx issues and various amendments which have adequately covered the issues raised previously".

14.3.25. The IoMTSC did not make any further representations in respect of marine mammals and the signed SoCG between it and the applicant records all

matters relating to marine mammals as agreed [[REP5a-037](#)], references TSC3 and TSC4].

North West Wildlife Trusts

14.3.26. The North West Wildlife Trusts (NWWT) said [[RR-065](#)] that it welcomed adherence to a MMMP but “*would like to emphasise the use of ... bubble curtains, timing of piling, or piling methods in accordance with industry best practice*” and was “*disappointed that a future monitoring plan of many of the ecological receptors has not been embedded into the project to validate predictions in the ES and inform future projects*”. NWWT was also concerned about transboundary issues and that “*there will be a ‘belt’ of wind farms from the Isle of Man down to Wales resulting in significant barrier effects*”.

14.3.27. NWWT did not make a WR or complete a SoCG.

ISSUES

14.3.28. There were exchanges of view between the applicant and IPs during the examination, particularly in relation to

- the assessment methodology
- mitigation of underwater noise due to UXO, vessels and piling
- monitoring of receptor behaviour

14.3.29. The ES and associated documents were all updated at various points during the examination to reflect this.

14.3.30. We consider for marine mammals the main important and relevant issues for reporting are:

- adequacy of information submitted
- assessment methodology
- mitigation and monitoring

Adequacy of information submitted

14.3.31. In light of the initial comments of both the MMO and NE we issued a Rule 9 letter [PD 006] seeking further information from the applicant by PDA prior to the start of the examination. Part of this further information was provided at [[PD1-010](#)] and outstanding information and a summary of all the further information sought were submitted by the applicant at deadline (D) 1 [[REP1-079](#)].

14.3.32. The applicant also submitted its ‘Response to Relevant Representations’ [[PD1-011](#)] at PDA prior to the start of the examination.

14.3.33. The applicant made minor revisions to chapter 11 of the ES [[REP1-030](#)] and associated appendices 11.2 [[REP1-044](#)], 11.3 [[REP1-046](#)] and 11.4 [[REP1-048](#)]; and provided Marine Mammal Technical Note 1 (EIA) [[REP1-083](#)] in support of its response to NE’s combined RR and WR [[RR-061](#)].

- 14.3.34. We considered all these responses, and all the information provided both by the applicant and IPs, much of which was by way of clarification, and asked written questions [\[PD-011\]](#) on the following matters:
- cumulative effects assessment
 - data gaps
 - population modelling
 - commitment to non-concurrent piling
 - PTS and TTS
 - drilling noise impacts (excluded from assessment)
 - mitigation secured in the DCO (draft MMMP) including NAS and soft-start piling
 - the status of the technical notes submitted at D1: whether in an updated DCO schedule 8 or updated ES/ HRA documents
- 14.3.35. The responses to the written questions clarified these issues and certain other minor issues.
- 14.3.36. At issue specific hearing (ISH) (2) the following issues were discussed [\[EV4-001\]](#):
- ecological monitoring
 - UXO: presence, charge weights, assessment and consenting process
 - thresholds for behavioural disturbance (UXO and piling activity)
 - cumulative effects: gas storage, carbon capture storage and other offshore wind farm projects: lack of information leading to possible underestimation of effects
 - guidelines and best practice, including the WMS of 29 January 2025 and related issues (UXO, PTS, proposed piling noise limit)
- 14.3.37. The applicant was able to clarify various aspects of the above issues and to put its position on the WMS. Although IoMTSC attended the hearing it made no post-hearing submissions. The remaining issues for discussion related mainly to the MMO and NE but they did not attend, so we sent a Rule 17 letter [\[PD-013\]](#) to them immediately following the hearing.
- 14.3.38. NE's response to the Rule 17 letter [\[REP4-065\]](#) signposted the new Defra marine noise package and new JNCC UXO clearance mitigation guidelines, which *"set out the expectation that from January 2025 ... all offshore wind pile driving activity across all English waters will be required to demonstrate that they have utilised best endeavours to deliver noise reductions through the use of primary and/or secondary noise reduction methods ... and that low order UXO clearance should now be the default clearance method"* and said that Defra is undertaking a 12-month study and pilot programme into the feasibility and achievability of a piling noise limit.
- 14.3.39. The MMO's response to the Rule 17 letter [\[REP4-064\]](#) indicated that it was broadly satisfied with the applicant's position in respect of marine mammals.
- 14.3.40. The applicant's post hearing submissions included further updates to chapter 11 of the ES [\[REP4-011\]](#), paragraph 11.23 and table 11.3] and an updated

UWSMS in respect of additional mitigation. Chapter 11 of the ES was also updated in respect of cumulative assessment [[REP4-011](#), paragraph 11.8], noting that *“there are no identified changes to overall conclusions”*.

- 14.3.41. Following updated UXO noise guidance from JNCC and UK Government, the applicant updated appendix 11.3, clarifying its position on species sensitivity [[REP4-017](#), paragraph 67 and table 5.1] and UXO clearance [[REP4-017](#), paragraph 67 and table 5.3], and presented the applicant’s view on the WMS [[REP4-061](#), table 2.1].
- 14.3.42. The applicant also updated the oUWSMS [[REP4-049](#), table 3.1] in respect of additional mitigation, as well as clarifying its position regarding the new Defra policy paper entitled Reducing Marine Noise (published on 21 January 2025) and its commitment to NAS [[REP4-049](#), paragraphs 34, 37, 43].
- 14.3.43. However, at D5, there were still several ‘amber’ unresolved issues on NE’s Risk and Issues Log [[REP5-083](#)]. In NE’s view these *“could make a material difference to the outcome of the decision-making process for this project”*.
- 14.3.44. This resulted in further written questions (ExQ3) [[PD-018](#)].
- 14.3.45. The MMO’s responses to ExQ3 [[REP5a-066](#)] related chiefly to the seasonal piling restriction during the cod spawning season and what would be needed post consent such that a seasonal restriction would not be required. The MMO was broadly content with the MMMP and the UWSMS in relation to marine mammals, noting that “further evidence is required on the reduction of impacts from the type of NAS utilised” and that this would be provided post-consent.
- 14.3.46. NE responded to our ExQ3 [[REP5a-071](#)] to say that:
- ‘yellow’ issues could be considered as resolved where so noted
 - reporting requirements at paragraph 150 of the dMMMP *“should include the recording of observed responses of marine mammals to active sources of noise from different construction activities”*
 - *“The proposal to acquire marine mammal records during post-construction monitoring for red-throated diver will provide only a partial dataset on the distribution of harbour porpoise ... as the surveys are only proposed over the winter period ... the Applicant should aim to acquire a dataset that is comparable to the pre-application baseline to be able to detect any changes.”*
 - its advice on monitoring requirements *“is based on the level of significance ... they are not blanket requirements ... there are no such examples from DCOs for other offshore wind farms”*
 - *“the need for NAS is in addition to the other potential mitigation measures listed. While NAS has the potential to enhance those measures through reductions in the volume of noise at the source, it cannot be considered to be a replacement or substitute for them.”*
- 14.3.47. The applicant’s response to ExQ3 [[REP5a-056](#)] noted in its response to ExQ3BEM1 on general outstanding matters that it considered all matters

raised by NE to be closed, and provided detailed updates in its responses to ExQ3BEM11 (outstanding issues raised by NE) and 3BEM12 (NAS), noting that “it is possible to achieve quieter installation techniques and reduced impact ranges ... dependent upon a review of detailed design parameters post-consent and modelling of impact ranges.”.

ExA’s consideration of adequacy of information submitted

- 14.3.48. We have carefully considered the original application documents, the additional information provided in response to our Rule 9 letter [PD-010] and all the further information and documents submitted during the course of the examination.
- 14.3.49. We are broadly satisfied with the applicant’s approach to the assessment of potential effects on marine mammals, including the selection of study areas and worst case scenarios, and the compilation of the baseline data used. We note that NE was content with the use of gap filling of data, that the use of EDR in respect of the onset of behavioural disturbance is conservative and that the use of TTS is reasonable. Hence, we are content with the assumptions made in the assessment where there was a shortage of data or no standard agreed methodology.
- 14.3.50. We are satisfied that the final versions of all relevant documents contain sufficient information, that this has enabled the impacts of the proposed development to be properly and adequately assessed, and that suitable mitigation has been proposed in sufficient detail at this stage, noting that the mechanisms exist to enable various matters to be resolved satisfactorily post-consent when more detailed information is available.

Assessment methodology

- 14.3.51. NE [RR-061] and NRW(A) [REP1-099] had expressed concerns with the applicant’s approach to the CEA and we had asked for further information in our Rule 9 letter [PD-010]. The applicant issued Marine Mammals Technical Note 1 (EIA) [REP3-060] and updated the ES [REP5a-019], and NE considered the issue resolved [REP6-052].
- 14.3.52. NRW(A) had expressed concerns during the examination with what it considered to be the limitations of the applicant’s assessment methodology, and consequently also the assessment results, particularly in relation to underwater noise due to piling activities.
- 14.3.53. We put written questions (ExQ2) [PD-015] in relation to the outstanding NRW(A) concerns relating to the assessment of cumulative and in-combination effects, particularly in respect of the screening of projects and the assessment of repeated disturbances.
- 14.3.54. The signed SoCG with NRW(A) [REP6-036] recorded all matters related to methodology as agreed.
- 14.3.55. The MMO’s position was that EDR, although acknowledged to be conservative, “*would be a suitable precautionary option ... given the*

uncertainties surrounding the use of TTS as a proxy for disturbance”
[REP1-096, table 1 references RR-047-32 and 33].

- 14.3.56. At RI_D23 in its Risk and Issues Log [REP6-052] NE said that use of EDR *“would be preferable to using the TTS distances, as disturbance can occur at greater distances than TTS”*.

ExA’s consideration of assessment methodology

- 14.3.57. We note that the proposed use of TTS rather than EDR was queried by MMO and NE. However, it was acknowledged that there was no standard method of assessing the onset of a behavioural response, and on balance we are satisfied that the applicant’s approach is sufficiently precautionary.
- 14.3.58. By the close of the examination, all outstanding assessment issues between the applicant, NRW(A) and NE had been resolved, except for the ‘yellow’ issue of use of existing vessel routes [REP1-052, tab D point RI_D51] which would be finalised post-consent when ports are known, and we are satisfied with the applicant’s responses.
- 14.3.59. We have considered the latest version of chapter 11 of the ES [REP5a-019] and supporting documents and are satisfied with the applicant’s assessment methodology and with the results of the assessment of the potential impacts of the proposed development on marine mammals.

Mitigation and monitoring

- 14.3.60. The MMO response to our Rule 17 letter [REP4-064] had indicated that issues relating to the mitigation of noise impacts could be resolved post-consent at the marine licensing stage.
- 14.3.61. NE’s response to our Rule 17 letter [REP4-065] had signposted the new Defra marine noise package and the new JNCC UXO clearance mitigation guidelines.
- 14.3.62. The applicant’s post hearing submissions included further updates to chapter 11 of the ES [REP4-011, paragraph 11.23 and table 11.3] and an updated UWSMS in respect of additional mitigation.
- 14.3.63. We considered these responses and asked further written questions (ExQ2) [PD-015] in relation to the proposed use of NAS and any further mitigation considered necessary.
- 14.3.64. The MMO responded to ExQ2BEM1 part c) in respect of NAS [REP5-075] to say that although it deferred to NE it *“would strongly advise that NAS will likely be required for all piling in the coming years”* and that it had *“no condition to provide and no position to provide to the ExA”* in respect of a NAS condition.
- 14.3.65. NE responded [REP5-081] to say that *“It is NE’s view that NAS should be in operation for all impact piling activity”*.

- 14.3.66. NRW(A) responded [REP5-085] to say that it was “*satisfied that the Applicant has addressed our concerns*” but that “*we recommend that the Applicant aligns their commitments further to the DEFRA and JNCC guidance*”.
- 14.3.67. NRW(A) considered matters closed following amendments to chapter 11 of the ES [REP5a-019] and to the UWSMS [REP5a-042], particularly in respect of disturbance, repeated disturbance and recoverability.
- 14.3.68. We noted from the MMO closing submission that it appeared satisfied with the updates to chapter 11 of the ES [REP5a-019] and had no further comments [REP6-046, paragraph 5.2.1].
- 14.3.69. In respect of underwater noise, we noted from the MMO closing submission [REP6-046, paragraph 3.12.3] that the MMO was satisfied with the wording of new condition 20(2) in the dDML [REP6-002, schedule 6]. NE was also satisfied with the wording of this condition [REP6-047, section 4].
- 14.3.70. However, at the close of the examination, NE had outstanding concerns [REP6-047] in respect of
- the monitoring of marine mammal responses to noisy activities
 - mitigation of disturbance due to vessels
 - measures to avoid piling and/ or UXO clearance which is concurrent with other projects

but said that “*whilst a resolution to these issues should be sought prior to construction, they need no longer be considered material considerations for the outcome of this Examination*”.

ExA's consideration of mitigation and monitoring

- 14.3.71. By the close of the examination, all outstanding issues between the applicant, the MMO and NE had either been resolved or were capable of resolution post-consent, and we are content with the applicant's proposals for collection of data at the same time as the bird surveys as proportionate. We are satisfied with the applicant's responses during the examination and with the mitigation and monitoring proposed.
- 14.3.72. We have considered all the submissions made by the MMO, NE and the applicant. Noting that the control is both in condition 20 of the DML and in the final version of the UWSMS, we are satisfied with the applicant's commitment to NAS and to the use of ADD within recommended time limits, and that adequate mitigation in respect of underwater noise is capable of being achieved through condition 20 and the final versions of the dMMMP [REP6-019] and the oUWSMS [REP5a-042].
- 14.3.73. We have also considered the latest versions of the oPEMP [REP5a-023], the oVTMP [REP5a-031] and the IPMP [REP5a-027], and are satisfied that the final versions would be capable of controlling, monitoring and mitigating the potential impacts on marine mammals so as to achieve no significant effects in EIA terms.

ExA's overall consideration of effects on marine mammals

- 14.3.74. The main issues of concern during the examination all related to piling and UXO clearance, and related to the adequacy of information submitted with the original application, the assessment methodology (particularly regarding UXO clearance), the proposed mitigation (particularly disturbance monitoring and the use of NAS), and the proposals for monitoring of responses to noisy activities.
- 14.3.75. We have reviewed the original application and all the additional information and revisions to the application documents, and are satisfied that all relevant impacts have been properly assessed.
- 14.3.76. We are also satisfied that the applicant has identified all potential adverse effects, these being primarily in relation to underwater noise during construction (piling, vessel movements and UXO clearance), and that the mechanisms exist within the final versions of the application documents to mitigate all outstanding significant effects (for example through monitoring and use of NAS) to ensure that residual effects would be no more than minor adverse and not significant in EIA terms.
- 14.3.77. However, these adverse effects would exist, and we consider that they should be given moderate negative weight in the overall planning balance due to the overall importance of marine mammals.

14.4. CONCLUSIONS

- 14.4.1. We are satisfied that the applicant's assessment of the proposed development and the associated design and mitigation are in accordance with NPS EN-1 and NPS EN-3 for marine mammals, and that there would be no residual significant effects in EIA terms.
- 14.4.2. Overall, we consider that the proposed development would have some minor adverse residual effects on marine mammals related primarily to piling and UXO clearance, some of which would be addressed in more detail post-consent. Due to the importance of marine mammals, overall effects when taken together would carry moderate negative weight in the planning balance.
- 14.4.3. Consequently, we conclude that the proposed development would comply with:
- paragraphs 5.4.17 in respect of EIA and 5.4.22 of NPS EN-1 in respect of assessment of effects on mobile/ migratory species such as marine mammals
 - paragraphs 5.4.35 (mitigation), 5.4.42 (mitigation hierarchy) and 5.4.44 (securing of mitigation) of NPS EN-1
 - paragraphs 2.8.131 to 2.8.134 of NPS EN-3 in respect of the assessment of impacts, and in particular underwater noise

- paragraphs 2.8.237 (monitoring, soft-start procedures), 2.8.238 (noise abatement, spatial/temporal restrictions, alternative foundation types) and 2.8.239 (review of mitigation options) of NPS EN-3
- paragraphs 2.8.312 and 2.8.314 of NPS EN-3 which require that the SoS should be satisfied that the design ensures that construction impacts are minimised, that noise mitigation measures can be imposed by requirements, and that cumulative and in-combination impacts on marine mammals have been considered
- the relevant policies of the NWMP, particularly policies UWN-2 and DIST-1 in respect of observing the hierarchy of avoiding, minimising and mitigating adverse impacts due to impulsive or non-impulsive noise and disturbance or displacement so that they are no longer significant

15. MARINE SEDIMENT AND WATER QUALITY

15.1. INTRODUCTION

15.1.1. This chapter deals with marine sediment and water quality. Matters relating to marine geology, oceanography and physical processes are considered in chapter 13.

15.1.2. In our consideration of marine sediment and water quality, we have had regard to:

- the requirements of the Overarching National Policy Statement for Energy (NPS EN-1), in particular section 5.16, and the National Policy Statement for Renewable Energy Infrastructure (NPS EN-3), section 2.8
- the relevant policies of the North West Inshore and the North West Offshore Marine Plan (NWMP), particularly Policy NW-WQ-1
- any matters prescribed in relation to the development, including the Convention for the Protection of the Marine Environment of the North East Atlantic (the OSPAR Convention)
- any other important and relevant matters

15.2. THE APPLICATION

15.2.1. The applicant's case in relation to marine sediment and water quality was set out in chapter 8 of the environmental statement (ES) [\[REP2-010\]](#) supported by associated figures in [\[APP-092\]](#). This chapter was also supported by appendices which primarily relate to other subject areas, namely appendix 7.1, the Offshore Geophysical Survey [\[APP-062\]](#) and appendix 9.1, the Benthic Characterisation Survey [\[APP-063\]](#).

15.2.2. The assessment was informed by, and took into account, the findings and conclusions of other relevant topics and chapters of the ES. Those chapters included:

- chapter 9 'Benthic Ecology' [\[REP5a-017\]](#).
- chapter 10 'Fish and Shellfish Ecology' [\[REP3-016\]](#).
- chapter 11 'Marine Mammals' [\[REP5a-019\]](#).
- chapter 12 'Offshore Ornithology' [\[REP6-009\]](#).
- chapter 13 'Commercial Fisheries' [\[REP3-018\]](#).
- chapter 19 'Human Health' [\[REP6-011\]](#).

15.2.3. The applicant set out what it considered to be the worst-case scenarios for this topic area in table 8.2 of chapter 8 of the ES [\[REP2-010\]](#). It maintained that the worst-case scenario would depend on the stage of the proposed development, construction, operation and maintenance, and decommissioning. It also would depend on the nature of the foundations utilised. For example, while gravity based foundations for 35 wind turbine generators (WTG) and 2 offshore substation platforms (OSP) would result in greater effect than 30 WTGs and 2 OSPs, if the monopile drilled foundations were to be used, the arisings for 30 WTGs and 2 OSPs would be greater than 35 WTGs and 2 OSPs as the larger WTGs would have a larger drill diameter.

BASELINE

Study area and sampling technique

- 15.2.4. The study area was defined as the eastern Irish Sea, between the north coast of Wales, the coastline of England from the Welsh border to Whitehaven and the Isle of Man and is shown in figure 8.1 in [\[APP-092\]](#).
- 15.2.5. Flowing from the OSPAR convention various assessments have been carried out by the OSPAR commission, which are presented in Quality Status Reports (QSR). Part of this considers sediment quality data and uses Background Assessment Concentrations (BAC) and Effects Range-Low (ERL) values to determine levels of contamination and trends over time. The applicant noted that BACs are statistical tools, while ERL are set at the lower tenth percentile of the data set of concentrations in sediments which are associated with biological effects.
- 15.2.6. In England disposal of dredge material at sea requires a licence from the Marine Management Organisation (MMO). To undertake this assessment, the MMO applies the Centre for Environment, Fisheries and Aquaculture Science (Cefas) action levels (AL) for contaminants on a primary list. There are two levels, AL1 and AL2. Where contaminant levels are below AL1 they are generally considered to be of no concern, levels between AL1 and AL2 require further investigation and contaminant levels above AL2 are generally considered unsuitable for sea disposal. While these are primarily used for licence determinations, the applicant noted that they are also used in environmental impact assessments (EIA).
- 15.2.7. Table 8.5 in chapter 8 of the ES [\[REP2-010\]](#) set out the various sediment quality guidelines used in the ES using the OSPAR BAC, OSPAR ERL, Cefas AL1 and Cefas AL2 values.
- 15.2.8. Site specific surveys were undertaken by the applicant which were completed in 2021. Grab sampling was undertaken over the whole of the Agreement for Lease (AfL) area, so that while 36 sampling stations were in the application site, there were another 14 in the remaining AfL area to the west.
- 15.2.9. Of the samples taken within the application site, 14 were subject of chemical contaminant analysis. The results can be found in appendix 9.1 of the ES [\[APP-063\]](#).
- 15.2.10. In addition to the samples, the applicant used other data sources to seek to understand this topic. These are set out in table 8.6 of chapter 8 of the ES [\[REP2-010\]](#). These were predominantly from previous ES documents for sites in the eastern Irish Sea, although they also included OSPAR reports.

Existing environment

- 15.2.11. In considering water quality the applicant interrogated Cefas data for the period 1998 to 2015 for the seas around the UK. This showed average suspended sediment concentrations (SSC) in the west of the application site

were approximately 3 milligrams per litre (mg/l) to 5mg/l, which increased to approximately 5mg/l to 7mg/l in the east.

- 15.2.12. More recent monitoring within the Morgan Offshore Wind Project Generation Assets proposal recorded typical SSC levels of 3mg/l, but during storm events, as expected, this increased to around 20mg/l. For the Gwynt y Môr Offshore Windfarm area, some 30 kilometres (km) to the south of the application site, SSCs in storm conditions reached over 300mg/l.
- 15.2.13. Looking at chemical parameters, the applicant noted that the application site is located in Region III 'Celtic Seas' as defined by OSPAR. The 2010 QSR stated that eutrophication was a problem in this area. Reductions in phosphorus discharges exceed the OSPAR target of 50% compared with 1985, but nitrogen discharges, mainly from agriculture, remained the main problem. As regards hazardous substances, environmental concentrations have fallen but were above acceptable concentrations in the coastal area of Region III. Contamination with persistent organic pollutants is widespread and there is historic pollution in aquatic sediments, which act as a continued source for releases of persistent contaminants.
- 15.2.14. The applicant maintained that the size of sediment grains is important. This is because finer grained materials, such as silts and clays, function as a sink for contaminants. Sediment size also assists in predicting the extent of any sediment plume.
- 15.2.15. British Geological Survey data indicates that the seabed across the application site is predominantly muddy sand and slightly gravelly muddy sand. Further details of the bedrock can be found in chapter 13 of this report.
- 15.2.16. The average sediment type across the application site, as identified from grab samples, was fine sand. Median particle sizes ranged between 0.044mm (coarse silt) and 0.35mm (medium sand). Average gravel content was 0.1%, although at station ST01 [[APP-092](#), figure 8.4], average mud content across the application site was 22.5%, ranging between 0% and 55.6%, and mud content was less than 30% in 67% of the samples and less than 10% in 19% of samples. Average sand content across the application site was 76.9%.
- 15.2.17. For the cumulative assessment, samples were also assessed from the site of the Morgan and Morecambe Transmissions Assets (M&MTA) proposal. Here sediments *"ranged from gravelly muddy sand to slightly gravelly sand, with 42% of the samples classified as muddy sand. Of the other samples, 26% were classified as sand and 10% were classified as gravelly muddy sand, representing the three most common sediment types across the survey area. The coarseness of sediments generally increased with increasing distance from the coast, with sediments in the west of the survey area typically comprising gravelly muddy sands and gravelly sands"* [[REP2-010](#), paragraph 8.59].
- 15.2.18. The nearest oil and gas activity is the Calder platform some 0.9m to the west of the application site, and the South Morecambe Central Production

Platform (CPP-1) approximately 1.6km to the north. Note was also made by the applicant of subsea cables and pipelines to the decommissioned South Morecambe DP3 platform. Chemicals are used for a variety of functions in the oil and gas industry, and any releases can contribute to contaminant concentrations in sediments and water.

- 15.2.19. The applicant reported that EIA studies for other offshore wind farms (OWF) in the vicinity also reported that contaminants were generally below AL1, although surveys relating to the Walney Extension IV (2013) and West of Duddon Sands (2006) showed some contaminants (arsenic, cadmium, lead and nickel) marginally above AL1. In the more recent studies for Awel y Môr (2022), Morgan Offshore Wind Assets (2023) and Mona Offshore Wind Project (2023) contaminant levels of all metals fell below AL1 and the majority of polycyclic aromatic hydrocarbons (PAH) were below other sediment quality guidelines.
- 15.2.20. Similarly, the applicant reported [[REP2-010](#), paragraph 8.64] that surveys for the M&MTA project analysed for metals, polychlorinated biphenyls (PCBs), PAHs and organotins. Here most sites recorded contaminant concentrations below AL1 and no sites exceeded AL2.
- 15.2.21. Tables 8.11, 8.12 and 8.13 in chapter 8 of the ES [[REP2-010](#)] presented survey data for metals and PAHs. As regards metals, the applicant maintained that there are very low level concentrations of contaminants. The only parameter which exceeded either of the sediment guideline values was mercury for BAC (5 samples) and ERL (1 sample). No samples exceeded AL1. For PAHs, several samples exceeded the BAC, but there were no exceedances of AL1. The applicant maintained that these exceedances were only marginally above the BAC level. Concentrations of PAHs were therefore considered to be very low. Total hydrocarbons in sediment ranged from 1.00 milligrams per kilogramme (mg/kg) to 33.07mg/kg, which the applicant considered indicates relatively low levels of contamination.
- 15.2.22. Looking at future trends, the applicant considered that conditions are likely to remain in the same range as past patterns. However, the applicant considered that where additional regulations controlling pollutants are implemented, then concentrations would reduce.
- 15.2.23. Climate change impacts on offshore water quality could, the applicant maintained, influence the baseline particularly if there were to be an increase in storm events. This would result in extended periods when suspended sediments are experienced. This, conversely, would mean that the proposed development would have less of an effect due to higher SSCs in the future baseline scenario.

MITIGATION

- 15.2.24. Table 8.3 of chapter 8 of the ES [[REP2-010](#)] set out what the applicant considered to be the mitigation measures embedded into the design. These would consist of:

- best practice techniques and due diligence regarding the potential for pollution, utilising a 'Project Environmental Management Plan' (PEMP) and 'Marine Pollution Contingency Plan' (MPCP) and a chemical risk assessment in line with international and national regulations and guidance
- micro-siting
- foundation and cable laying installation techniques using methods and equipment most suitable to seabed conditions; where piled foundations are used, there would be a preference to pile-driving rather than drilling where practicable
- preparation of 'Construction Method Statements' (CMS), post-consent and pre-construction setting detailed methodologies
- preparation of an 'Offshore Decommissioning Plan'

ASSESSMENT OF EFFECTS

Construction effects

- 15.2.25. The applicant considered that the construction of foundations, inter-array and platform link cabling activities would have the potential to disturb sediment leading to increases in SSCs.
- 15.2.26. The applicant set out its summary of potential impacts [[REP2-010](#), table 8.22]. While all these impacts were considered not significant in EIA terms, some did have 'low' impacts.
- 15.2.27. The first of these was an increase in SSCs due to seabed preparation for foundation installation. The worst-case involved dredging and returning to the water column at the sea surface. The applicant believed, due to the sediment sizes present, that a passive plume is likely to remain in suspension for around half a tidal cycle (6 hours). The contents of the plume would be likely to fall to the seabed along the axis of tidal flow (west-east) quite rapidly within a range of a few hundred metres to around 1.0km. The applicant considered that outside this, any SSCs would be indistinguishable from background levels, but could spread up to one tidal ellipse (around 10km). The applicant considered that water quality in the area is of low sensitivity because it would not be a confined area, and it would have a high capacity to accommodate change due to its size and the ability to dilute any alterations in water quality parameters. The applicant considered that the magnitude of impact would be 'low' due to the area over which SSCs would occur leading to a 'minor adverse' effect [[REP2-010](#), paragraph 8.93].
- 15.2.28. Similarly, the applicant considered the second impact where a non-negligible effect could be noted, relates to drill arisings for foundation installation. Similar processes to those set out in the previous paragraph would occur, again with a 'low' sensitivity leading to the same, 'low', magnitude of impact and 'minor adverse' effect [[REP2-010](#), paragraph 8.100].
- 15.2.29. Thirdly, where sandwaves were cleared, or inter-array and platform link cables were installed, the applicant considered that the same processes would be involved. This, again, would mean that there would be similar

processes with a 'low' sensitivity leading to the same, 'low', magnitude of impact and 'minor adverse' effect [[REP2-010](#), paragraph 8.108].

15.2.30. Fourthly, the applicant identified an increase in SSCs associated with unexploded ordnance (UXO) clearance on or beneath the seabed. The applicant anticipated that increases in SSC caused by UXO clearance would be significantly less than that caused by sandwave clearance. This would mean that resultant SSCs would settle back to the seabed in proximity to the UXO clearance site and within a short period of time. Similar processes would occur, in an area of 'low' sensitivity, meaning that the magnitude of impact would be 'low' and a 'minor adverse' effect [[REP2-010](#), paragraph 8.115].

15.2.31. Finally, the applicant considered the potential for a deterioration in water quality associated with the release of sediment bound contamination. However, as sediment contaminant concentrations were low, and those that were above were only marginally exceeding the lower AL so, the applicant considered there would be minimal risk with sediment bound contaminants. As the site was not contained and therefore would have a high capacity to accommodate change, it was assessed as being of low sensitivity. In the event that sediment was released it would be likely to return to baseline conditions within 1 to 3 days. Consequently, the applicant concluded a 'negligible adverse' effect would occur which is not significant in EIA terms [[REP2-010](#), paragraph 8.120].

Operation and maintenance effects

15.2.32. The applicant identified two potential impacts during the operation and maintenance phase of the proposed development. These would be an increase in SSCs associated with cable repairs and reburial activities and a deterioration in water quality due to resuspension of sediment bound contaminants. Both were considered to be of 'negligible adverse' effect [[REP2-010](#), paragraphs 8.127 and 8.132].

Decommissioning effects

15.2.33. The applicant considered that decommissioning effects would be likely to be similar to construction effects. However, given the lack of information on timing and methodologies, the applicant did not undertake a detailed assessment. At a high level, the applicant assessed two impacts, that of increases in SSCs from removal of foundations and part of the cables as of 'minor adverse' effect, and that of deterioration of water quality due to resuspension of sediment bound contaminants as 'negligible' adverse [[REP2-010](#), paragraphs 8.137 and 8/138].

Cumulative effects

15.2.34. Table 8.15 of chapter 8 of the ES [[REP2-010](#)] set out the applicant's summary of projects considered for cumulative environmental assessment (CEA) in relation to marine sediment. This included the applicant's assessment of those to be screened in and out of the CEA.

15.2.35. For the ‘combined assessment’, in all phases, construction, operation and maintenance, and decommissioning, the applicant did not identify any effects on water quality that would result in effects of greater significance than the project-alone assessment for the proposed development. This is set out in table 8.16 of chapter 8 of the ES [\[REP2-010\]](#).

15.2.36. Moving to the ‘all projects assessment’, the applicant categorised potential cumulative effects as being those:

- with OWFs in the eastern Irish Sea
- with maintenance activities for cables and pipelines
- with marine aggregates dredging
- with disposal sites
- with carbon capture storage sites

15.2.37. The applicant concluded that, considering all the above, and taking into account the spatial distribution and temporal and transient nature of increased suspended sediments, no cumulative effects on water quality above the proposed development project-alone effects would occur [\[REP2-010\]](#), paragraph 8.185].

Transboundary assessment

15.2.38. Due to the temporal and transient nature of increased suspended sediments, transboundary effects were scoped out of the assessment.

Interrelationships and interactions

15.2.39. Table 8.17 chapter 8 of the ES [\[REP2-010\]](#) sets out where the applicant considered the interrelationships between the individual effects on marine sediment and water quality and other topics considered in the ES, mostly clearly with marine geology, oceanography and physical processes which informed, for example, the Zone of Influence that suspended sediment would travel.

15.2.40. Tables 8.18 to 8.20 of chapter 8 of the ES [\[REP2-010\]](#) set out what the applicant considered to be the interrelationships between the individual effects on marine sediment and water quality during the construction, operation and maintenance, and decommissioning phases.

Monitoring

15.2.41. The applicant set out what it considered to be the necessary monitoring requirements in the In Principle Monitoring Plan (IPMP) [\[REP6-017\]](#). Due to the very low level of contaminants identified and the degree of effects identified, no further monitoring was proposed. The applicant considered that the conclusions of the assessment can be given a high degree of certainty.

15.3. ISSUES CONSIDERED DURING THE EXAMINATION

THE CASE FOR INTERESTED PARTIES

Marine Management Organisation

- 15.3.1. In its relevant representation (RR) the Marine Management Organisation (MMO) [RR-047, paragraph 4.3.1] confirmed that it and the Cefas agree with the applicant that the concentration of contaminants do not indicate any level of concern *“and the suspended sediment plumes are expected to return to baseline conditions within 1 to 3 days and the magnitude of those impacts was assessed as negligible adverse effect on water quality”*. The MMO did, however, defer to the Environment Agency to comment on water quality.
- 15.3.2. The MMO, however, did note that in the OSPAR region III (Celtic Seas) eutrophication was still a problem and while concentrations of hazardous substances had generally fallen these were still above acceptable concentrations. The MMO expressed concern as to why pesticides and other resistant chemicals were omitted from assessment. Following clarification from the applicant in its response to RR [PD1-011, RR-047-45] that these concerns relate mostly to effects closer to the coast, the MMO considered the matter closed [REP3-085].
- 15.3.3. The MMO also requested clarification as to the types of chemical analysis performed on samples which, if any, exceeded AL2 together with their location. The MMO and Cefas considered that comparison with Canadian standards was not appropriate, since the analysis should be against UK Action Levels. Following clarification by the applicant [PD1-011, RR-047-46] that this related to the wider baseline and not the application site and that comparison had been made against UK Action Levels the MMO considered these matters closed.
- 15.3.4. Concern was also expressed about the nature of scour protection since bagged solutions may contain plastics (polypropylene). The MMO and Cefas requested that the final design of the mattresses should be submitted and approved with the draft development consent order (dDCO). Following discussions throughout the examination, the MMO welcomed [REP5-075, RR-047-48] amendments to the oCMS [REP4-056] (although later updated further on other matters [REP6-034]) which indicated that this would be dealt with post-consent *“once the requirements [for scour protection] are better understood”*.
- 15.3.5. In order to minimise the risk of a pathway for chemicals to the marine environment, the MMO sought notification of all chemicals, including those used within closed systems that require frequent top-up. This would include paints and coatings. Due to the potential depth of piles, the use of drilling fluids, cements or cement additives also should be notified. The MMO also sought clarification as to whether, for gravity based structures (GBS) foundation systems, any antifouling of biocides would be used. For suction buckets using grout, the MMO noted care would need to be taken to

minimise the use of concrete to prevent release. This should therefore be included in a CMS.

- 15.3.6. In response to the applicant's view [PD1-011, RR-047-49] that these last two points could be dealt with in a PEMP the MMO requested [REP3-085, section 2] amendments to the dDCO, and in particular condition 7 of the draft Deemed Marine Licence (dDML). This is discussed further in chapter 25 of this report.
- 15.3.7. The MMO and Cefas welcomed that mud produced during drilling activities would be disposed of within the application site, but initially noted that this would require the area to be designated as a disposal site. This would also apply for sandwave clearance material. The MMO reported [REP5-075, 1BEM20] that the application site (and other seabed) had been designated as a disposal site with the reference IS 156 and the name of "*Morgan and Morecambe OWFs*".
- 15.3.8. The MMO explained the reason for the joint designation "*is the transmission assets disposal site that has also been requested as part of the Morgan and Morecambe Offshore Windfarm Transmission Assets disposal site overlaps with the Morecambe generation asset site. Therefore, these have been included together along with the transmission asset areas because disposal sites cannot overlap. As all the disposal material has been assessed including cumulative impacts there is no concern with multiple projects utilising the same disposal site as long as their disposal quantities are within the maximum parameters assessed*" [REP5-075, reference R17.1.3].

Natural England

- 15.3.9. In its RR [RR-061] Natural England (NE) submitted its representations on marine sediment and water quality together with those for marine geology and physical processes. They were set out in table 1 of appendix E.
- 15.3.10. NE confirmed that it agreed with the applicant on the worst case scenario, however it expressed concerns at cable protection, boulder clearance and unexploded ordnance (UXO) clearance.

Environment Agency

- 15.3.11. The Environment Agency (EA) commented [AS-010]: "*The windfarm generation assets are located offshore in the Irish Sea beyond the boundary of the 12 [nautical mile] nm remit of the Environment Agency.*" The Environment Agency made no further representations during the examination.

ISSUES

- 15.3.12. Although there was little dispute by the end of the examination on matters relating to marine sediment and water quality, we consider the main important and relevant issues for reporting are:

- effect of muddy sediments on water quality

- use of chemicals offshore

Effect of muddy sediments on water quality

- 15.3.13. In our first written questions [[PD-011](#)] we raised a number of issues with the applicant on this topic area.
- 15.3.14. Firstly, we were concerned [[PD-011](#), ExQ1BEM17] about the potential for water quality to be adversely affected from muddy sediments, as the applicant confirmed finer grained materials such as silts and clays act as a sink for contaminants. The applicant indicated [[REP3-068](#)] that latest research shows turbid wakes are caused by upward turbulent mixing of existing suspected sediments in the lower water column rather than by local scouring.
- 15.3.15. The applicant pointed out that sediment samples from the site-specific sampling do not indicate elevated levels of contaminants. This would mean that such contaminants are not present to be transported or to adversely affect water quality. Any turbidity would be likely to be temporary through storm action rather than as a result of the proposed development.

ExA's consideration on effect of muddy sediments on water quality

- 15.3.16. We are satisfied from the evidence submitted, which was not countered in any way, that the sediment at the application site area has a low level of contamination. Consequently, any disturbance, however caused, be that construction, UXO clearance, operation and maintenance, or decommissioning would only have a low risk of spreading contamination. We therefore agree with the applicant in its table 8.22 of chapter 8 of the ES [[REP2-010](#), table 8.22] which sets out a summary of potential impacts on marine sediment and water quality receptors that any effects would not be significant in EIA terms.
- 15.3.17. The designation by the MMO of the application site (and other land) as a disposal site also provides us with confidence that any arisings from the construction of the proposed development, for example from drilling for foundations, can be adequately and appropriately dealt with.

Use of chemicals offshore

- 15.3.18. From the RRs and the submission from the EA it would appear that there is a lacuna in law in respect of who is responsible for monitoring and regulating water quality offshore further than 12nm from mean low water springs (MLWS). The MMO defers to the Environment Agency, but the Environment Agency indicates its remit does not extend to the application site which is further than 12nm from MLWS.
- 15.3.19. For this reason, particular attention was paid to the question of potential pollution of the marine environment from substances taken offshore. Initially, we were concerned that the MMO's approach of requiring approval of all materials would lead to regulatory overreach, since all materials are

‘chemicals’, including those which are inert and would result in no risk in a marine environment.

- 15.3.20. We asked the MMO in our Rule 17 letter to it and NE [\[PD-013](#), question R17.1.12] why it had requested a condition in the deemed marine licence which would have required approval by the MMO of all chemical and substances used below mean high water springs. We were not aware that such a provision had been included within a DCO previously. We also asked the MMO to justify the ten week approval period and queried whether a list of materials could be given which did not require such an approval.
- 15.3.21. At the requested deadline (D) 4, the MMO failed to respond substantively [\[REP4-064](#)], although it did indicate it would work with the applicant on this. At D5 [\[REP5-075](#), section 7.7] the MMO revised its request, so that the wording was amended (the response refers to condition 10(1)(e) when it should refer to condition 9(1)(e)). It no longer related to all chemicals, but it would only apply to *“all chemicals that have a pathway to the marine environment and are used for the licensed activities (with the exception of any chemicals used in the course of normal navigation)”*.
- 15.3.22. The revised condition requires the applicant to submit the physical, chemical and ecotoxicological properties of the chemical unless it is *“present on the OSPAR List of Substances Used and Discharged Offshore which Are Considered to Pose Little or No Risk to the Environment (PLONOR)”*.
- 15.3.23. The MMO explained [\[REP5-075](#), paragraphs 7.7..3 and 7.7..4] that it *“aims to create a revised consistent and thorough approach to chemical consenting for OWF. This should proactively avoid last minute delays and provide robust evidence regarding environmental impacts. The current approach for consented OWF projects requires chemical information to be submitted in an inconsistent manner across different projects.”*
- 15.3.24. The MMO noted, [\[REP5-075](#), paragraph 7.7..5] that previous deemed DML have referenced the ‘Offshore Chemical Notification Scheme’ (OCNS), a ranked list of registered products, but this has not removed the need for approval and reporting. The MMO notes that the OCNS list does include chemicals considered to be a threat to the marine environment as reported by OSPAR.
- 15.3.25. The MMO’s response set out in paragraph 15.3.21 effectively means that approval would only be required for chemicals with a risk to the marine environment, in both open and closed systems. The MMO also referred in paragraph [\[REP5-075](#), 7.7.10] to OSPAR Decision 2002/2. We note that condition 9(3) of the dDML effectively transposes the relevant definitions in OSPAR Decision 2002/2 into the dDML, and this includes a specific definition of the term ‘chemical’ rather than using the term as it is understood in plain English.

ExA's considerations on use of chemicals offshore

- 15.3.26. While the MMOs revised approach is, as far as we are aware, novel, we believe it now would provide a proportionate approach to the approval of the use of substances in the marine environment, removing the need to have approved materials that would not have a pathway to the marine environment and at the same time comply with international obligations. This would ensure that the proposed development would not result in pollution to the water environment.
- 15.3.27. There are a small number of minor differences between the MMO's final preferred drafting [[REP5a-064](#), paragraph 5.3] and that in the final dDCO [[REP6-002](#)]. However, we are content with the wording in the dDCO as this provides appropriate clarity and was consulted upon during the examination.
- 15.3.28. We make further comment on the timetable for the turnaround of approvals by the MMO in paragraphs 25.4.110 to 25.4.114 of this report.

15.4. CONCLUSIONS

- 15.4.1. We are satisfied that the applicant has undertaken an assessment, made contact with relevant regulators and described the existing quality of waters which could be affected by the proposed development, as required by paragraphs 5.16.3, 5.16.4 and 5.16.7 of NPS EN-1.
- 15.4.2. We are satisfied that the design and embedded mitigations of the proposed development are such that they should ensure that significant adverse effects on the water environment are avoided. This would be secured through construction management plans and good practice controls in line with paragraph 5.16.8 and 5.16.9 of NPS EN-1.
- 15.4.3. Overall, we consider that the proposed development would have neutral effects in EIA terms in relation to marine sediment and water quality and thus is neutral in the planning balance.
- 15.4.4. The proposed development would appropriately ensure that there are no adverse effects in relation to sediment and on the water environment. As such the proposed development would comply with:
- paragraphs 5.16.2 and 5.16.16 of NPS EN-1, which note that construction, operation and maintenance and decommissioning can cause adverse ecological effects and requires the Secretary of State to consider proposals to mitigate adverse effects on the water environment.
 - paragraph 2.8.309 of NPS EN-3, which requires the Secretary of State to be satisfied that the design, including use of materials, reasonably minimise potential effects on the physical environment.
 - paragraph 2.6.4.1 of the Marine Policy Statement which reiterates paragraph 5.16.2 of NPS EN-1.
 - policy NW-WQ-1 of the NWMP which indicates that proposals that protect, enhance and restore water quality will be supported.
 - the OSPAR convention.

16. OFFSHORE ORNITHOLOGY AND BATS

16.1. INTRODUCTION

- 16.1.1. This chapter of the report considers the effects of the proposed development on offshore ornithology and bats. Offshore ornithology was identified as a principal issue in our Rule 6 letter [PD-007].
- 16.1.2. Effects on SPAs and Ramsar sites in an HRA context are discussed separately in the Report to Inform Appropriate Assessment (RIAA) [[REP5a-009](#)] and are reported on in chapter 22 of this report.
- 16.1.3. The issue of potential impacts on bats over the Irish Sea was raised during the examination and is also considered in this chapter.
- 16.1.4. In our consideration of offshore ornithology and bats below, we have had particular regard to:
- the requirements of the Overarching National Policy Statement for Energy (NPS EN-1), as set out in Section 5.4, and of the NPS for Renewable Energy (NPS EN-3), as set out in Section 2.8
 - the relevant policies of the North West Inshore and North West Offshore Marine Plan 2021 (NWMP), particularly policy NW-DIST-1
 - any matters prescribed in relation to the development
 - any other important and relevant matters

16.2. THE APPLICATION

- 16.2.1. Following a thorough consideration of the original application documents and the relevant representations (RR), and prior to the start of the examination, we decided to issue a Rule 9 letter [PD-006] seeking further information and written comments from the applicant relating to offshore ornithology in respect of:
- A full quantitative assessment of cumulative effects for ornithology following the method previously supplied by Natural England (NE) to the applicant, that is where no quantitative data were available using nearby windfarms as proxies (see NE RR [[RR-061](#), reference B1, B14, B16, B18-21, B24]).
 - An updated assessment for lesser black-backed gull (LBBG) at Morecambe Bay and Duddon Estuary (MBDE) Special Protection Area (SPA) and Ribble and Alt Estuary (RAE) SPA noting updated figures for 2023 [[RR-061](#) references B3, B26, B27, B29].
 - An updated assessment using average mortality rates recommended in the NE and Natural Resources Wales (Advisory) (NRW(A)) interim advice note and as set out in Annex A of Annex B1 [[RR-061](#), reference B9].
 - A review and update of the months assigned to each season for gannet where necessary, noting the inconsistencies identified by NE [[RR-061](#), reference B10].

- A check and confirmation of the total annual lower and upper confidence interval values in the collision risk modelling (CRM) results table [\[RR-061\]](#), reference B10].
 - Provision of log files for the little gull stochastic CRM (sCRM) run including full inputs and outputs and details of any methodological updates [\[RR-061\]](#) reference B11].
 - A check and confirmation of the non-breeding collisions for great black-backed gull and whether this changes any conclusions made [\[RR-061\]](#), reference B12].
- 16.2.2. The applicant provided responses to the Rule 9 letter [\[PD1-010\]](#) and its 'Response to Relevant Representations' [\[PD1-011\]](#) at Procedural Deadline A (PDA) prior to the start of the examination, with outstanding information and a summary of the information we requested being submitted at deadline (D)1 [\[REP1-079\]](#).
- 16.2.3. The applicant's final assessment of the potential impacts of the development on offshore ornithology was set out in chapter 12 of the environmental statement (ES) Offshore Ornithology [\[REP6-009\]](#) which was supported by a series of figures [\[APP-096\]](#) and two accompanying appendices:
- appendix 12.1 Offshore Ornithology Technical Report [\[APP-070\]](#).
 - appendix 12.2 Aerial Survey Two Year Report March 2021 to February 2023 [\[APP-071\]](#)
- 16.2.4. The assessment was informed by, and took into account, the findings and conclusions of other relevant topics and chapters of the ES. Those chapters included:
- chapter 5 (Project Description) [\[REP1-022\]](#) which detailed the parameters used to establish the worst case scenarios for each impact assessed.
 - chapter 6 (EIA Methodology) [\[APP-043\]](#) which explained how the realistic worst-case scenarios for each impact were derived from the Project Design ('Rochdale') Envelope (PDE).
 - chapter 9 (Benthic Ecology) [\[REP5a-017\]](#) and chapter 10 (Fish and Shellfish Ecology) [\[REP3-016\]](#), which were considered relevant to the offshore ornithology assessment in respect of effects on habitats and prey species.
- 16.2.5. Other application documents that were relevant included:
- the Outline Project Environmental Management Plan (oPEMP) [\[REP5a-023\]](#)
 - the In Principle Monitoring Plan (IPMP) [\[REP5a-027\]](#)
 - the Outline Vessel Traffic Management Plan (oVTMP) [\[REP5a-031\]](#)
- 16.2.6. During the examination the applicant updated earlier versions of the above documents and submitted several new documents in response to issues that had been raised by us and by interested parties. In particular, NE had raised the issue of a potential impact pathway with some bat species, so the applicant had provided an update to the Habitats Regulations Assessment (HRA) Screening Report by way of a Technical Note on the Assessment of

Offshore Impacts on Bats over the Irish Sea [[REP4-055](#), [REP5a-051](#)] and further evidence from other offshore wind farm (OWF) ESs in respect of barotrauma in wind turbine-related bat mortality [[REP5a-050](#)]. Other documents submitted were:

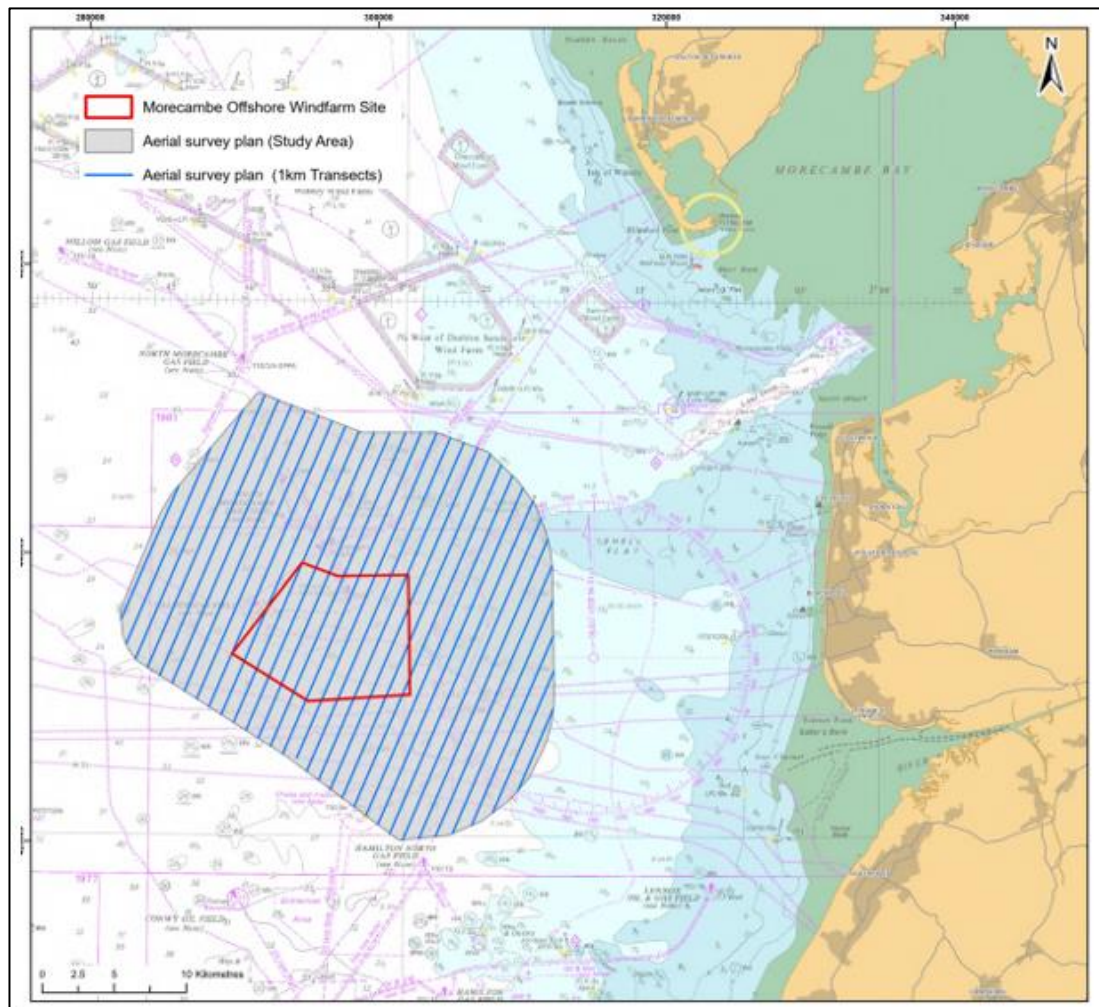
- the applicant's response to the Rule 9 Letter [[PD-010](#)]
- outstanding Information from the applicant in response to the Rule 9 Letter [[REP1-079](#)]
- Offshore Ornithology Technical Note 1 (EIA) [[REP3-056](#)], subsequently incorporated into chapter 12 of the ES
- Offshore Ornithology Technical Note 3 (Red-Throated Diver at Liverpool Bay SPA Update Assessment) [[REP1-082](#)], subsequently incorporated into chapter 12 of the ES
- Supporting Ornithological Papers [[REP3-067](#)]
- Recommendations for the selection of, and boundary options for an SPA in Liverpool Bay (Webb et al., 2006) [[REP4-053](#)]
- Additional information to support assessment of Red-Throated Diver feature at Liverpool Bay SPA [[REP4-054](#)]
- Report on Interrelationships with Other Infrastructure Projects [[REP6-030](#)]
- Commitments Register [[REP6-032](#)]

BASELINE

Study area

- 16.2.7. The study area for offshore ornithology was shown on figure 12.1 [[APP-096](#)] and was based on the area included in the baseline aerial surveys and is shown as Figure 15. This covered the application site plus a hybrid buffer varying from 4 kilometres (km) to 10km, depending on the distances at which impacts could occur for the various receptors. The survey area and buffers were in accordance with NE guidance and had been agreed with NE [[REP6-009](#), table 12.1]. Further information was provided in chapter 12 of the ES [[REP6-009](#), section 12.5.1] including a table showing the species-specific buffer distances used for different impact pathways in the assessment [[REP6-009](#), table 12.13].

Figure 15: Study area for offshore ornithology (extract from figure 12.1 of [APP 096])



- 16.2.8. The relative importance of the region and the application site for bird species was evaluated [REP6-009, section 12.5.2]. The applicant noted that there were concentrations of herring gull and LBBG around the Ribble estuary and that LBBG was a qualifying feature of both MBDE Special Protection Area (SPA) and Ribble and Alt Estuary (RAE) SPA, both of which are also Ramsar sites, but that there was a limited number of large seabird breeding colonies within foraging range of the proposed development. Also, none of the seabird species would be expected to occur in large numbers in the area of the proposed development during the breeding season.

Liverpool Bay/Bae Lerpwl SPA

- 16.2.9. The applicant noted that Liverpool Bay/Bae Lerpwl SPA (Liverpool Bay SPA) adjoined the eastern boundary of the proposed development and had been designated for red-throated diver (RTD), common scoter and little gull during the non-breeding season and for common tern and little tern during the breeding season.
- 16.2.10. The SPA boundary had originally covered a smaller area to the east of the proposed development but it had been extended in 2017 and now adjoined

the application site. The applicant noted that this extension had been in respect of little gull as a qualifying feature and not RTD or common scoter.

- 16.2.11. Consequently, the areas adjacent to the proposed development were not considered by the applicant to be of high importance for RTD or common scoter, and very low numbers of little gull had been recorded outside the breeding season. Also, the proposed development would be outside the mean maximum foraging distance from known little tern and common tern breeding colonies.
- 16.2.12. The applicant concluded that, although several receptors required detailed consideration, existing information indicated that the study area was not of particularly high importance to seabirds at any time of year compared with other areas in the Irish Sea, UK waters or the north east Atlantic [[REP6-009](#), paragraph 12.63].

Realistic worst-case scenarios

- 16.2.13. The worst case scenarios used in the assessment for the construction and the operation and maintenance phase impacts were summarised in chapter 12 of the ES [[REP6-009](#), table 12.2]. The applicant derived these from the PDE in accordance with chapter 6 of the ES 'EIA Methodology' [[APP-043](#)] based on the project parameters in chapter 5 of the ES 'Project Description' [[REP1-023](#)].
- 16.2.14. The worst case scenario for indirect effects through impacts on habitats and prey species was as presented for disturbance/ habitat loss impacts in chapter 9 of the ES for benthic ecology [[REP5a-018](#), table 9.2] and in chapter 10 (fish and shellfish ecology) [[REP3-016](#), table 10.2].

Baseline data sources

- 16.2.15. Aerial surveys were undertaken to provide site-specific information for the offshore ornithology impact assessment, covering the area of the proposed development plus a custom buffer of 4km to the south and west, and 10km to the east and north due to the proximity of the Liverpool Bay SPA.
- 16.2.16. Additional existing data sources used to inform the baseline and assessment were summarised in chapter 12 of the ES [[REP6-009](#), section 12.4.2].
- 16.2.17. The results of the aerial survey were presented and discussed in appendix 12.1 Offshore Ornithology Technical Report [[APP-070](#)] which provided detailed information on:
- the data collected
 - how robust density and abundance estimates were produced
 - the species observed during the site-specific surveys
 - the approach and results of the apportionment of the following seven seabird species to SPAs during the breeding season (tables 3.2 to 3.9):
 - Manx shearwater
 - gannet
 - herring gull

- LBBG
- kittiwake
- puffin
- razorbill
- the methodology and results of the CRM for both the standard approach (using the sCRM in accordance with discussions with NE) and for migratory species
- the magnitude of potential displacement effects for species screened in to the assessment
- the results of the population viability analysis (PVA) for great black-backed gull (GBBG) in the EIA context due to the predicted cumulative impact of collision exceeding a 1% threshold in relation to the largest seasonal population

16.2.18. Details of the aerial survey data collection and analysis, and the methodology used to provide population and density estimates, was presented in appendix 12.2 Aerial Survey Two Year Report March 2021 to February 2023 [[APP-071](#)].

16.2.19. Limitations on data certainty were acknowledged and discussed in the ES [[REP6-009](#), section 12.4.6] and included uncertainty in respect of:

- aerial surveys not undertaken due to poor weather
- estimating seabird density and abundance from baseline survey data
- estimating seabird flight characteristic values (for example, displacement and mortality rates) for displacement modelling
- flight height distributions and avoidance rates, bird size, flight speed and behaviour for CRM
- turbine parameters

16.2.20. The applicant considered that the approach followed best practice and guidance and that the assessment conclusions were precautionary.

16.2.21. The future baseline in the study area had also been considered, including pressure from prey availability, bycatch, invasive alien species, disturbance and displacement, collision risk and pollution. Climate change also had the potential to affect seabird populations through prey availability, mortality rates and extreme weather events. Consequently, the assessment had been carried out in the context of declining baseline populations of some receptors and had considered whether a given impact would be likely to exacerbate a decline in the relevant reference population [[REP6-009](#), paragraphs 12.75 and 12.76].

MITIGATION

16.2.22. The embedded mitigation measures were outlined and summarised in chapter 12 of the ES [[REP6-009](#), section 12.3.3 and table 12.3]. These included:

- site location outside areas designated for their importance to bird populations

- air gap increased from 22m (as consulted on at the pre-application stage) to 25m above highest astronomical tide (HAT), greater than the minimum required for shipping and navigation safety to reduce the potential collision risk
- best practice protocol to minimise disturbance to RTD and common scoter during construction, operation and maintenance, and decommissioning, by, where possible:
 - restricting vessel movements to existing navigation routes where densities are relatively low
 - maintaining direct transit routes to minimise transit distances through RTD areas
 - avoiding rafting birds and disturbance in areas of high density
 - avoiding over-revving engines to minimise disturbance
 - briefing vessel crews (toolbox talks, best practice guidance)

16.2.23. An oVTMP [[REP5a-031](#)] was also proposed, secured by condition 9(1)(j) in the draft Deemed Marine Licence (dDML) [[REP6-002](#), schedule 6], which included mitigation measures during both construction and operation such as passage planning to minimise vessel movements. Additional information would be available post-consent when construction ports had been identified.

ASSESSMENT OF EFFECTS

Assessment criteria

- 16.2.24. The impact assessment was undertaken using the source-pathway-receptor model to identify likely environmental impacts on ornithological receptors resulting from the proposed construction, operation and maintenance, and decommissioning of the proposed development.
- 16.2.25. The key terms used in the offshore ornithology assessment were defined in chapter 6 of the ES 'EIA Methodology' [[APP-043](#)] and were referred to in chapter 12 of the ES [[REP6-009](#), section 12.4.3]. Definitions of high, medium, low and negligible receptor sensitivity, conservation value and magnitude of impact were given in tables 12.8, 12.9 and 12.10.
- 16.2.26. The potential significance of effect was established using a matrix [[REP6-009](#), table 12.11] to arrive at a major, moderate, minor or negligible significance of effect, or of no impact and therefore no change (table 12.12).
- 16.2.27. Further aspects of the assessment methodology relating to CRM, displacement and PVA were presented in appendix 12.1 Offshore Ornithology Technical Report [[APP-070](#)].
- 16.2.28. Potential inter-relationships between ornithology and bat impacts and other impacts considered in the ES, and potential interaction between the various ornithology and bat impacts were considered as part of the overall assessments.
- 16.2.29. The potential for effects on offshore ornithological receptors was assessed against various impacts as follows:

- construction phase
 - impact 1: disturbance and displacement (work activity, vessel movements, lighting) and barrier effects (from erection of first turbine)
 - impact 2: indirect impacts due to effects on habitats and prey species
- operational and maintenance phase:
 - impact 1: displacement and barrier effects due to infrastructure; also disturbance and displacement effects (work activity, vessel movements, lighting)
 - impact 2: collision risk
 - impact 3: combined collision risk and displacement
 - impact 4: indirect impacts due to effects on habitats and prey species
- decommissioning phase:
 - impact 1: disturbance and displacement (work activity, vessel movements, lighting) and barrier effects (until last turbine is removed)
 - impact 2: indirect impacts due to effects on habitats and prey species

16.2.30. The principal receptors [\[REP6-009\]](#), section 12.6.1] were:

- seabird species within the study area (year round)
- other bird species likely to migrate through the study area
- nationally and internationally important designated sites supporting these, where birds from these sites are likely to use the study area:

Construction effects

Disturbance, displacement and barrier effects

16.2.31. Table 12.19 of [\[REP6-009\]](#) lists all the receptor species. Those species considered to be most likely at risk of disturbance and displacement were listed as screened in for assessment for construction disturbance and displacement:

- common scoter
- guillemot
- Manx shearwater
- razorbill
- RTD

16.2.32. In respect of disturbance and displacement during construction, the applicant noted [\[REP6-009\]](#), section 12.6.2.1, paragraph 12.84] that *“Any impacts resulting from disturbance and displacement from construction activities would be short-term, temporary and reversible in nature, lasting only for the duration of construction activity, with birds expected to return to the area once construction activities have ceased”*.

16.2.33. The applicant also noted in respect of common scoter that the assessment was precautionary *“due to the Liverpool Bay SPA population being used as the reference population rather than the total regional population”* [\[REP6-009\]](#), section 12.6.2.1, paragraph 12.100].

16.2.34. In respect of RTD the applicant noted that it has *“been identified as being particularly sensitive to human activities in marine areas, including through the disturbance effects of ship and helicopter traffic”* [REP6-009, section 12.6.2.1, paragraph 12.145] and that *“based on advice from Natural England, this assessment has assumed the precautionary maximum mortality rate associated with the displacement of red-throated diver would be 1-10%”* [REP6-009, section 12.6.2.1, paragraph 12.149] and was therefore assessed as having high sensitivity to disturbance.

16.2.35. There were no significant effects predicted to result during construction.

Indirect impacts due to effects on habitats and prey species

16.2.36. Indirect impacts on habitats and prey species such as noise and suspended sediments were discussed in chapter 12 of the ES [REP6-009, section 12.6.2.2] and also in chapter 10 of the ES [REP3-016, tables 10.19 and 10.29]. There were no significant effects predicted to result through indirect impacts.

Operation and maintenance effects

Disturbance, displacement and barrier effects

16.2.37. Table 12.20 of [REP6-009] lists all the receptors. Those species considered to be most likely at risk of disturbance and displacement were listed as screened in for assessment:

- common scoter
- gannet
- guillemot
- razorbill
- Manx shearwater
- RTD

16.2.38. In respect of disturbance and displacement, the applicant noted that *“[a]s offshore windfarms are relatively new features in the marine environment, there was limited robust empirical evidence about the disturbance and displacement effects of the operational infrastructure in the long term”* and that *“[t]here was no empirical evidence that birds displaced from windfarms, or exposed to barrier effects, suffered increased mortality”* [REP6-009, section 12.6.3.1, paragraph 12.163].

16.2.39. The applicant also noted that *“[c]ommon scoter were noted to be highly susceptible to disturbance from boat and helicopter traffic”*. [REP6-009, section 12.6.3.1, paragraph 12.175] and therefore highly sensitive to displacement (paragraph 12.180). Consequently, although the applicant assessed the magnitude of impact to be negligible, the overall significance of effect was considered to be ‘minor adverse’ and so is not significant in EIA terms [REP6-009, section 12.6.3.1, paragraphs 12.180, 12.181].

16.2.40. In respect of gannet, the applicant noted that during the spring and autumn migration seasons there would be ‘no change’ in EIA terms [REP6-009,

section 12.6.3.1, paragraphs 12.191 and 12.193]. During the breeding season the applicant concluded there would be a ‘minor adverse’ effect and that the overall year around effect would also result in a ‘minor adverse’ effect which is not significant in EIA terms [REP6-009, section 12.6.3.1, paragraphs 12.189 and 12.195].

- 16.2.41. In respect of auks (guillemot and razorbill), the applicant noted that “[i]n accordance with [Statutory Nature Conservation Bodies] SNCB guidance (2022), and as agreed with Natural England through the [expert topic group] ETG process, a range of mortality rates of 1-10% and displacement rates of 30-70% have been considered for auks, with 70% displacement and 10% mortality as the worst-case. However, there is evidence to show that mortality for auks is likely to be at the low end of the range” and went on to provide supporting evidence for its assessment [REP6-009, section 12.6.3.1 paragraphs 12.200 to 12.204] of minor adverse for both guillemot and razorbill, which is not significant in EIA terms.
- 16.2.42. The applicant also noted evidence to suggest that Manx shearwater can be affected by artificial light, for example human dwellings or lighthouses, which might result in birds colliding with lit buildings, but that there is some uncertainty, particularly away from breeding colonies, and so taken together with operational disturbance and displacement effects the overall assessment remained that there would be ‘negligible’ effect [REP6-009, section 12.6.3.1, paragraphs 12.244 to 12.247], that is negligible adverse and not significant in EIA terms.
- 16.2.43. The applicant further noted that “Red-throated divers are considered to have a very high general sensitivity to disturbance and displacement and have been noted to avoid disturbed areas such as shipping lanes, as well as offshore windfarms” [REP6-009, section 12.6.3.1, paragraph 12.248] and that there is some seasonal variation, so although there would be ‘no change’ during the autumn migration season the assessment is that there would be a ‘minor adverse’ effect during the remainder of the year which is not significant in EIA terms [REP6-009, section 12.6.3.1, paragraphs 12.264, 12.267, 12.270, 12.273].
- 16.2.44. There were no significant effects predicted to result during the operation and maintenance phase of the proposed development.

Collision risk

- 16.2.45. Collision risk during operation was assessed using sCRM and was discussed in section 12.6.3.2 of the ES [REP6-009, paragraphs 12.274 to 12.285 and tables 12.44 to 12.47]. Table 12.46 showed all relevant species, with those species scoped in for assessment shown underlined, namely:

- gannet
- little gull
- kittiwake
- common gull
- herring gull

- LBBG
- GBBG

- 16.2.46. Precautionary estimates of future increases in the mortality rate arising from potential collision risk were assessed in terms of the potential change in the baseline mortality rate [REP6-009, section 12.6.3.2, paragraph 12.288] and were shown for seasonal and annual populations in table 12.48.
- 16.2.47. As agreed during the ETG consultation [REP1-002], migrant seabird species named as qualifying features of SPAs and/ or Ramsar sites within 100km of the proposed development were screened into the assessment. The sites were listed in paragraph 12.292 of the ES [REP6-009, section 12.6.3.2], the collision mortality rates for these species were shown in table 12.50 and the assessment results were shown in table 12.52.
- 16.2.48. The effects arising from potential collision risk were assessed using the potential changes in the baseline mortality rate [REP6-009, section 12.6.3.2, paragraph 12.288 and table 12.52].
- 16.2.49. There were no significant effects predicted to result during the operation and maintenance phase of the proposed development.

Combined collision risk and displacement effects

- 16.2.50. An assessment of the effects of combined operational collision risk and displacement (impact 3) was carried out on gannet, the only species considered sensitive to both impacts.
- 16.2.51. There were no significant effects predicted to result during the operation and maintenance phase of the proposed development.

Indirect effects due to effects on habitats and prey species

- 16.2.52. An assessment was also carried out on the impact of indirect effects through impacts on habitats and prey species (impact 4). As with the construction phase assessment, other chapters of the ES informed the assessment.
- 16.2.53. There were no significant effects predicted to result during the operation and maintenance phase of the proposed development.

Decommissioning effects

- 16.2.54. The applicant noted [REP6-009, section 12.6.4, paragraph 13.319] that *“[a]ny effects generated during the decommissioning phase of the Project would be expected to be similar, or of reduced magnitude, to those generated during the construction phase, as certain activities such as piling would not be required. Decommissioning would generally involve a reverse of the construction phase through the removal of some structures and materials”*.
- 16.2.55. Consequently, the assessment results for impacts due to decommissioning were broadly similar to those for construction, and there were no significant effects predicted to result. Potential effects on designated sites

- 16.2.56. In response to the NRW(A) written representation [[REP1-099](#)], the applicant considered the potential effects of the proposed development on Pen y Gogarth / Great Orme's Head Site of Special Scientific Interest (SSSI) in relation to each qualifying feature (guillemot, razorbill and kittiwake) during the operational phase using population viability analysis (PVA) [[REP6-009](#), section 12.6.5.1] and concluded that for all species the project-alone effect would be 'minor adverse' (paragraph 12.379).

Potential effects from Highly Pathogenic Avian Influenza

- 16.2.57. The applicant considered the effects of the H5N1 variant of Highly Pathogenic Avian Influenza (HPAI) and concluded that *"the effects of HPAI would not result in any changes to the conclusions of the EIA"*. [[REP6-009](#), section 12.6.6 paragraph 12.383].

Cumulative effects

- 16.2.58. The 'combined assessment' was discussed in section 12.7.3.1 of the ES [[REP6-009](#)] and the results shown in table 12.60. All combined effects were assessed as minor adverse (not significant in EIA terms).

- 16.2.59. The 'all projects assessment' was based on both the impacts shown in table 12.58 of chapter 12 of the ES [[REP6-009](#)] and the other plans and projects identified in section 12.7.2 and table 12.59 of chapter 12 of the ES [[REP6-009](#)]. In general terms these included:

- OWFs:
 - constructed projects
 - projects consented but not yet constructed
 - projects applied for, under consideration or otherwise foreseeable
- wave and tidal energy projects
- marine aggregate extraction
- oil and gas exploration and extraction
- subsea cables and pipelines
- commercial shipping

- 16.2.60. Due to a lack of quantitative data, NE had advised a two-step approach to 'gap filling' (see comment in [[REP6-009](#), table 12.1]) for existing offshore wind projects where there were no quantitative assessments. The first step was used in the cumulative effects assessment (CEA), whereby collision mortality and abundance data were obtained to derive cumulative collision and displacement mortality estimates. Qualitative assessments were also presented for existing offshore wind farms where there was no project-specific data, but for the second step the applicant in its Offshore Ornithology Technical Note 1 (EIA) considered that it was not suitable to estimate impacts using nearby wind farms as proxies as the data would have been project-specific and could therefore not be used in a consistent or robust manner [[REP3-056](#), paragraph 79].

- 16.2.61. NE had also advised the applicant to remove historic projects approaching end of life with limited or no overlap with the timeframe for the construction and operation of the proposed development from the CEA. Consequently, Arklow Bank Phase 1, Barrow and North Hoyle OWFs had been removed from the CEA by the applicant.
- 16.2.62. The results of the ‘all projects assessment’ were presented and discussed in section 12.7.3.2 of [REP6-009]. The applicant concluded that all cumulative effects would be no greater than minor adverse and therefore not significant in EIA terms, except for the effects of collision risk on GBBG during the operational phase, which the applicant concluded would be ‘moderate adverse’ and therefore significant in EIA terms. However, the applicant noted the mitigation provided (air gap increased to 25m) and the small contribution of the project to this effect [REP6-009, paragraph 12.467].

Potential cumulative effects on designated sites

- 16.2.63. The applicant considered the cumulative effects of the proposed development on statutory designated sites where birds had been listed as qualifying or notified features [REP6-009, section 12.7.3 and table 12.95], including sites where bird populations might migrate through the proposed development. For the Pen y Gogarth/ Great Orme’s Head SSSI the applicant assessed the cumulative effect for kittiwake species as ‘moderate adverse’, which is significant in EIA terms, but noted that suitable and proportionate mitigation had been provided, and that the cumulative effect arose primarily through other projects [REP6-009, paragraph 12.505].
- 16.2.64. Otherwise for all species the applicant assessed the effects as being no more than ‘minor adverse’ which is not significant in EIA terms.

Transboundary effects

- 16.2.65. The applicant considered that there was the potential for the proposed development to affect the Isle of Man [REP6-009, section 12.8.1] and the Republic of Ireland [REP6-009, section 12.8.2] in terms of seabird populations, designated sites and collision and displacement effects, noting that the Isle of Man “is not an EEA state but a self-governing British Crown Dependency” [REP6-009, section 12.8, paragraph 510] so its protected areas are not within the scope of the RIAA [REP5a-019, section 11.8.1, paragraph 1073].
- 16.2.66. The applicant also noted [REP6-009 section 12.8 paragraph 12. 510] that *“There is also the potential that cumulative transboundary effects could arise from collisions and displacement at offshore windfarms outside UK territorial waters, although no such projects (where quantitative data were available) were identified (Table 12.59)”*.

Isle of Man

- 16.2.67. The applicant provided an overview of the Isle of Man seabird census results for 2017-2018, noting that *“while some species such as guillemot and cormorant have increased, the majority of species have (sic) experienced*

declines since the previous census in 1999 in common with populations elsewhere across the British Isles". It also provided details of Isle of Man designated sites which it considered had the potential for transboundary impacts [[REP6-009](#), tables 12.96 and 12.97].

16.2.68. On the basis that no detailed apportionment of seabirds to Isle of Man populations or designated sites had been carried out, the applicant decided that *"adverse impacts would be split proportionately between the Isle of Man populations and designated sites in approximate proportion to their respective contributions to the regional [Biologically defined minimum population scales] BDMPS population."* and concluded that the effects would be minor adverse and not significant in EIA terms, *"except for Dalby Coast [Areas of Special Scientific Interest] ASSI, Glen May ASSI and Marine Drive ASSI, for which the worst-case scenario would be moderate adverse for great black backed gull and significant in EIA terms"*.

16.2.69. However, as noted previously in relation to potential cumulative effects on designated sites, the unapportioned contribution of the proposed development was very small, so *"the predicted mortality apportioned to the Isle of Man ASSIs would be much less than one bird per annum, and inconsequential"*, noting also that mitigation to minimise collision risk had been provided by increasing the air gap to 25m above HAT and that as the contribution of the proposed development would be so small, there would be no potential for additional mitigation sufficient to make a measurable difference to the assessment conclusion.

Republic of Ireland

16.2.70. The applicant noted that *"Many of the largest and most important seabird colonies in the RoI have been designated as SPAs. Those with potential connectivity to the project have been considered in the RIAA"* and stated that *"[d]ue to the distance between the Project and the RoI, any transboundary impacts during the breeding season would be limited to species with large foraging ranges, such as gannet and Manx shearwater"* [[REP6-009](#), section 12.8.2, paragraphs 12.516 and 12.517].

16.2.71. On the basis that no detailed apportionment of seabirds to Republic of Ireland populations or designated sites had been carried out, the applicant decided that *"adverse impacts would be split proportionately between the RoI populations in approximate proportion to their respective contributions to the regional BDMPS population"* and concluded that the effects would be 'minor adverse' and not significant in EIA terms, *"except for great black-backed gull, for which the worst-case scenario would be moderate adverse and significant in EIA terms"* [[REP6-009](#), section 12.8.2, paragraphs 12.516 and 12.517].

16.2.72. However, as noted previously in relation to potential cumulative effects on designated sites, the unapportioned contribution of the proposed development was very small, so *"the predicted mortality apportioned to the RoI populations would be much less than one bird per annum, and inconsequential"*, noting also that mitigation to minimise collision risk had been provided by increasing the air gap to 25m above HAT and that as the

contribution of the proposed development would be so small there would be no potential for additional mitigation sufficient to make a measurable difference to the assessment conclusion [REP6-009, section 12.8.2, paragraphs 12.516 and 12.517].

Interrelationships

- 16.2.73. The main issue was indirect impacts on offshore ornithology receptors, resulting from potential impacts on benthic ecology and fish and shellfish ecology, which had already been assessed in chapters 9 and 10 of the ES [REP5a-017, REP3-016], affecting the prey resource for birds as shown in table 12.98 [REP6-009].

Interactions

- 16.2.74. Areas of potential interaction of impacts were presented in table 12.99 [REP6-009] for the construction and decommissioning phases, and in table 12.100 for operation and maintenance phase.
- 16.2.75. The construction and decommissioning interaction was between impact 1: disturbance and displacement from construction activity and impact 2: indirect effects through impacts on habitats and prey species, the applicant noting that:
- *“[i]t is anticipated that the decommissioning impacts would be similar in nature to those of construction.”* and also
 - *“possible medium to long term effects on birds, but spatial magnitude very small”.*
- 16.2.76. The screening of potential operation and maintenance interaction was between impact 1: disturbance, displacement and barrier effects, impact 2: collision risk, and impact 4: indirect effects through impacts on habitats and prey species, the applicant noting that there was no potential interaction between any of the identified impacts.
- 16.2.77. A lifetime assessment was also undertaken, which considered both the impact interactions identified and the effects on receptors for all phases of the proposed development.
- 16.2.78. The result of the assessment was that the highest significance of effect level was minor adverse, which is not significant in EIA terms, for either the phase assessment or the lifetime assessment, and no greater than for the individually assessed impact [REP6-009, table 12.101].

Potential monitoring requirements

- 16.2.79. The applicant described the monitoring requirements in the IPMP [REP6-017, section 2.6.3 and Table 2.4], noting that these *“would be targeted to address impacts, evidence gaps or uncertainty of most relevance to the project ... the identified measures form the basis of discussion with stakeholders ... The applicant is supportive ... of proportionate joint industry projects or alternative site-based monitoring ... and would consider*

collaboration opportunities from SNCBs, NGOs or other developers in strategic monitoring programmes” [REP6-017, paragraphs 59, 62] and that these “*would be further developed and agreed with stakeholders prior to construction, based on the IPMP and taking account of the final detailed design of the Project*” [REP6-009, section 12.11, paragraph 12.521].

- 16.2.80. The applicant stated that it was “*supportive, in-principle, of proportionate joint industry projects or alternative site- based monitoring of existing seabird activity within the windfarm site and would consider collaboration opportunities from SNCBs, [non-government organisations] NGOs or other developers in strategic monitoring programmes. This would likely be managed outwith the IPMP*” [REP6-009, section 12.11, paragraph 12.522].
- 16.2.81. The applicant also noted that “[t]he Project Environmental Management Plan (PEMP) would set out the applicant’s intentions for managing potential impacts on red-throated divers” [REP6-009, section 12.11, paragraph 12.523].

Assessment summary

- 16.2.82. A summary of the predicted effects on ornithology receptors was presented in table 12.102. This showed that all effects were assessed as ‘no change’, ‘negligible’ or ‘minor adverse’ and so not significant in EIA terms, except for a cumulative effect due to collision risk for GBBG which was found to be ‘moderate adverse’ and so significant in EIA terms. However, the applicant noted [REP6-009, section 12.12, paragraph 12.532] that, particularly in view of the contribution from the proposed development being so small and with an increase in the proposed turbine clearance to 25m above HAT, there was no further mitigation that could usefully be offered which would make a measurable difference to the assessment conclusion.
- 16.2.83. The applicant also noted that an assessment of effects on non-SPA designated sites had been undertaken. All effects were considered to be at most ‘minor adverse’ and not significant, except that for Pen y Gogarth / Great Orme’s Head SSSI where the cumulative effect for kittiwake was considered to be ‘moderate adverse’ and significant in EIA terms. As with GBBG the applicant’s view was that the proposed development had provided suitable and proportionate mitigation through an increase in the turbine air gap to 25m above HAT, and that the cumulative effect arose primarily through the effects of other projects [REP6-009, section 12.12, paragraph 12.533].

The Applicant’s closing position

- 16.2.84. Following the discussions as set out in section 16.3 of this chapter of the report below, the applicant’s closing position at the end of the examination was set out in section 2.4.1 of its summary and signposting document [REP6-040]. The applicant concluded that “*for the Project alone, there would be no significant adverse effects to ornithology receptors. Cumulatively, a residual significant effect has been identified for great black-backed gull, and the kittiwake feature of the Great Orme’s Head Site of Special Scientific*

Interest (SSSI). Suitable and proportionate mitigation for these effects is proposed ... noting the small contribution of the Project”.

- 16.2.85. However, the applicant’s summary and signposting document [[REP6-040](#), table 2.4] gave details of outstanding areas of disagreement between the applicant and the Marine Management Organisation (MMO), NE, NRW(A) and the Royal Society for the Protection of Birds (RSPB) relating to:

- monitoring
- assessment methodology
- measures to mitigate vessel disturbance

- 16.2.86. There were also outstanding areas of disagreement between the applicant and NE in relation to other ecology receptors [[REP6-040](#), table 2.5], specifically relating to impact pathways for bats over the Irish Sea.

Monitoring

- 16.2.87. The applicant included proposals for ornithological monitoring for RTD in the IPMP [[REP6-017](#)] on the basis that compensation measures for RTD would not be required, as the monitoring information would be used to validate the applicant’s conclusion of no AEoI.

- 16.2.88. The applicant noted that pre-construction survey requirements had not been agreed, but proposed that these would be agreed post-consent [[REP5-026](#), table 2.4].

- 16.2.89. The applicant did not consider that collision monitoring for LBBG was needed due to the very small project-alone mortality [[REP5-061](#), at RL_B36], but would consider contributing to wider monitoring [[REP6-017](#), paragraph 62].

- 16.2.90. The applicant considered that there were “*suitable controls within [development consent order] DCO conditions*” as the final monitoring plan would have to be agreed post-consent in accordance with the IPMP and conditions 9(1)(c), 14, 15 and 16.

Assessment methodology

- 16.2.91. The applicant noted that following amendments to the modelling NE had no outstanding concerns and considered that all matters had been properly addressed, and that the assessments were sufficiently robust and in accordance with industry good practice. The RSPB had recognised that the issues it had raised were industry-wide and not capable of resolution by the applicant alone.

- 16.2.92. The applicant’s position was that the Manx shearwater assessment had considered the effects on this species in accordance with good practice, and that there was no risk that the effects would be underestimated [[PD1-011](#)]. The applicant provided supporting evidence in response to our ExQ1BEM50 [[REP3-067](#)].

- 16.2.93. The applicant's view was that the submissions made during examination would *"allow the SoS to reach appropriate conclusions on the ornithological assessment at both the EIA and the HRA scales"* [[REP6-040](#), table 2.4].

Measures to mitigate vessel disturbance

- 16.2.94. The applicant had noted NE comments on the (oVTMP and had updated it [[REP5a-031](#)], but its view remained that, as ports for construction, operation and maintenance had not yet been selected, the oVTMP was sufficient to secure best practice measures for vessel movements post-consent when the port locations are known.

Impact pathways to bats over the Irish Sea

- 16.2.95. The applicant had originally screened out terrestrial ecology including bats from assessment on the basis described in the HRA Screening Report [[APP-028](#)], but had noted NE's response [[REP3-089](#), [REP3-093](#) tab I] to our ExQ 1HRA3 [[PD-011](#)] and had provided a 'Technical Note on the Assessment of Offshore Impacts on Bats over the Irish Sea' [[REP4-055](#)] as an update to the HRA Screening Report [[REP3-006](#)].
- 16.2.96. In response to our ExQ3BEM4 [[PD-018](#)] and to NE's comment [[REP5-080](#), [REP5-083](#)], the applicant had updated its technical note at D5a [[REP5a-051](#)] and also submitted further evidence from ESs for other OWF in respect of barotrauma in wind turbine-related bat mortality [[REP5a-050](#)].
- 16.2.97. The applicant's position was that the risk of impact was extremely low. Monitoring was therefore not considered proportionate, but the applicant was open to discussions with SNCBs in respect of a proportionate contribution to strategic monitoring.

Compliance with policy requirements

- 16.2.98. At section 2.4.5 of its of its summary and signposting document [[REP1-060](#)] the applicant set out how it considered the ornithological assessment complies with the requirements of NPS EN-1 and NPS EN-3. In particular, it noted that:
- it had sought to avoid designated areas "with the Project sitting outside any SPA." as set out in the Site Selection and Assessment of Alternatives [[APP-041](#)]
 - the air gap had been increased further to 25m above HAT to provide a further reduction in potential collision risk in compliance with NPS EN-3 paragraph 2.8.141

16.3. ISSUES CONSIDERED DURING THE EXAMINATION

THE CASE FOR INTERESTED PARTIES

Marine Management Organisation

- 16.3.1. The MMO made a relevant representation (RR) [RR-047] which noted at paragraph 4.12 1 that *"[t]he MMO defers to NE as SNCB, and supports any*

comments raised in relation to the Ornithology. The MMO will continue to be part of the discussions relating to securing any mitigation and monitoring or other conditions required within the DML”.

16.3.2. In its closing submissions [REP6-046], the MMO noted at paragraph 2.1.2 that most concerns raised had been addressed, and at paragraph 5.6.2 in respect of the oPEMP [REP5a-023] that “the MMO defers to NE regarding ornithological matters”.

16.3.3. With regard to the applicant’s proposals for ornithology and bat monitoring in the IPMP [REP6-017], the MMO said that it was content and “the MMO defers to NE”.

Natural England

16.3.4. NE submitted a combined RR and Written Representation (WR) [RR-061] which included a Principal Areas of Disagreement Summary (PADS), colour-coded as follows:

- ‘red’: NE considers that unless these issues are resolved it will have to advise that an AEoI cannot be ruled out and that they are unlikely to be resolved during the examination
- ‘amber’: NE does not agree with the applicant’s position or approach and could become red if not addressed or resolved
- ‘yellow’: NE does not agree with the applicant’s position or approach but is satisfied that for this project it is unlikely to make a material difference to the outcome
- ‘green’: NE is in broad agreement with the applicant’s approach and has no significant outstanding concerns

16.3.5. The principal issue [RR-061, summary reference P3] relating to offshore ornithology which concerned NE was that, to ensure that the CEA is complete, a full quantitative assessment should have been carried out in accordance with the method previously supplied by NE, and that the applicant should collaborate with other Irish Sea OWF applicants to ensure that the same data were being used for cumulative and in-combination assessments (see also NE RR references B1, B8, B22).

16.3.6. NE also had ‘amber’ concerns [RR-061 Appendix D Table 1, with NE references] relating to:

- B11: the need to provide log files for the little gull sCRM carried out by the applicant, including full inputs and outputs, along with any methodological updates
- B16: the need to provide little gull abundance data from project included in the CEA and update the assessment
- B14, B18, B19, B21: use of NE recommended approach to gap filling for the CEA and update the assessment
- B20: the applicant’s calculation of the reference population for GBBG (the applicant’s reference population is too large)

- B26: use of the most recent SPA population counts when interpreting the outcomes from PVA models

These were detailed in Appendix B, Table 2 [\[RR-061\]](#).

- 16.3.7. NE reviewed the information submitted by the applicant at PDA in response to our Rule 9 letter, and made a written submission [REP1-097] including an updated version of its Risk and Issues Log [REP1-098] which recorded some progress but no change in the 'red' status of the principal issues.
- 16.3.8. In section 2 of its closing statements for topics with unresolved issues [REP6-047], NE advised that there would be no significant EIA level impacts for any offshore receptors, except for GBBG, for which significant cumulative impacts could not be ruled out.
- 16.3.9. At the close of the examination, NE noted that the applicant had taken SNCB advice on the CEA and this had now been incorporated into chapter 12 of the ES [\[REP6-009\]](#).
- 16.3.10. Consequently, in NE's PADS statement [REP6-050], issue P3 (offshore ornithology) showed as 'green' *"Resolved at D5a"* and no 'red' issues remained in NE's Risk and Issues Log [REP6-052].

Bats

- 16.3.11. NE's position on bats was that, although the applicant had screened out terrestrial ecology including bats, it was concerned that there was potentially an impact pathway for some bat species [\[REP3-089\]](#), [\[REP3-093\]](#) tab I]. In response, the applicant had submitted a 'Technical Note on the Assessment of Offshore Impacts on Bats over the Irish Sea' [\[REP4-055\]](#) which it updated in response to our ExQ3BEM4 [\[REP5a-051\]](#) and in response to NE comment at [\[REP5-080\]](#), [\[REP5-083\]](#).
- 16.3.12. In section 5 of its closing statement, NE said that it was *"satisfied that impacts to English designated sites with bat features can be ruled out" but that it "remains concerned that the cumulative impact of offshore wind farms on bats transiting the Irish Sea is very poorly understood"*.

Natural Resources Wales

- 16.3.13. NRW(A) outlined its interest in marine ornithology and cumulative and in-combination impacts relating to Welsh-designated sites [\[RR-062\]](#).
- 16.3.14. Further information, including a response to information submitted by the applicant at PDA, was provided in the NRW(A) WR [\[REP1-099\]](#), which identified the key issues as:
- concerns regarding the applicant's approach, mean seasonal definitions and mean seasonal abundances at EIA scale and its implications for the HRA of Welsh SPAs
 - lack of consideration of a range of mortality rates in gannet displacement assessments

- data gaps in cumulative/in-combination assessments
- lack of quantitative assessment of features of Pen y Gogarth/ Great Orme's Head SSSI

16.3.15. The NRW(A) D6 submission [REP6-053] welcomed the applicant's updates to chapter 12 of the ES [REP5-014] in relation to gannet abundances, gap-filled projects and Manx shearwater abundances and regarded these matters as closed.

16.3.16. With reference to the Great Orme's Head SSSI, NRW(A) also said that it was satisfied with the updated assessments, both project-alone and cumulatively, and agreed that the project, both alone and cumulatively, was unlikely to have a significant adverse effect on guillemot or razorbill. NRW(A) was also content that the project-alone impact on kittiwake would be no more than minor adverse, and was content with the mitigation (increasing the turbine air draught height to 25m above HAT) in respect of cumulative kittiwake collisions.

16.3.17. The signed SoCG between the applicant and NRW(A) [REP6-036] recorded all EIA matters relating to ornithology as agreed, except in respect of adequate pre-application consultation which it was agreed had no material impact.

Isle of Man Government (Territorial Sea Committee)

16.3.18. The Isle of Man Government (Territorial Sea Committee) (IoMTSC) [RR-031] expressed concern regarding the potential impact of OWF collision risk on Manx colonies of GBBG. However, IoMTSC noted that *"within the embedded mitigation, the air gap has been increased to 25m above HAT, which should have the effect of reducing the operational strike risk to many seabirds"*. It acknowledged that the project-alone impact on GBBG was small, but was concerned about the cumulative impact as there had in recent years been a severe decline in the Isle of Man GBBG population.

16.3.19. The IoMTSC did not make any further representations in respect of EIA-related offshore ornithology matters or bats.

16.3.20. The signed SoCG between the applicant and the IoMTSC recorded all matters relating to offshore ornithology as agreed except for cumulative effects in relation to GBBG, for which its closing position was that this issue would have no material impact [REP1-066, table 2.3].

North West Wildlife Trusts

16.3.21. In respect of ornithology, the North West Wildlife Trusts (NWWT) said [RR-065] that *"we expect that all impacts are minimised through the project design and best use of available technology e.g. minimum tip height of turbines ... minimising ... the number of turbine blades, slower rotation speeds, and blunt edges on the structure, slow start procedures for turbines"*. NWWT was also concerned about transboundary issues and that *"there will be a 'belt' of wind farms from the Isle of Man down to Wales resulting in significant barrier effects"*.

16.3.22. NWWT did not make a WR or enter into a SoCG.

Royal Society for the Protection of Birds

16.3.23. The RSPB [[RR-073](#)] advocated a precautionary approach and said that it had “significant methodological concerns with the applicant’s assessment . The RSPB said that it was also “unable to reach conclusions with regard to the significance of predicted impacts” and had “significant concerns relating to the project’s in-combination and cumulative collision risk and displacement impacts” and challenged the applicant’s assessment of no adverse impacts on Manx shearwater, highlighting concern about disorientation due to lighting.

16.3.24. In its response to our ExQ1BEM50 [[PD-011](#)] RSPB provided copies of publications relating to collisions with lighthouses and other illuminated structures.

16.3.25. The signed SoCG between the applicant and the RSPB [[REP5a-033](#)] maintained concerns in respect of assessment methodology and recorded that RSPB:

- (RSPB 11, 18)
 - *“has concerns regarding the baseline characterisation for Manx shearwater ... relate to wider industry limitations ... and are therefore not a project-specific issue”*
 - *“disagrees with the conclusion of the EIA assessment (sic) that there would be no adverse effect on Manx shearwaters as a result of collision”*
- (RSPB 14) *“considers that the impacts of (highly pathogenic avian influenza) HPAI have not been properly addressed”*
- (RSPB 17, 19) *“disagrees with the approach to the treatment of de minimis thresholds and the contribution of measurable impacts to in-combination assessment ... acknowledges that Natural England supports the use of the 1% threshold in this approach to impact assessments...”* and acknowledges that this is an *“industry wide point”*.

16.3.26. The signed SoCG [[REP5a-033](#)] recorded all matters agreed except for RSPB concerns in respect of:

- Manx shearwater, noting that *“the species may be vulnerable to disorientation by artificial lighting at night”* but that the point is industry-wide rather than project-specific (ref RSPB 11 and 18)
- ecosystem effects, noting no material impact (RSPB 13)
- HPAI impacts, noting industry-wide points rather than project-specific (RSPB 14)
- treatment of de minimis thresholds, acknowledging that the RSPB position differs from the NE and NRW(A) positions (RSPB 17 and 19).

ISSUES

16.3.27. There were exchanges of view between the applicant and IPs during the examination, particularly in relation to:

- the assessment methodology
- cumulative effects assessment
- mitigation, particularly of collision risk
- monitoring of receptor behaviour including bats

and the ES and associated documents were all updated at various points during the examination to reflect this.

16.3.28. We consider for offshore ornithology and bats the main important and relevant issues for reporting are:

- adequacy of information submitted
- assessment methodology
- mitigation and monitoring

Adequacy of information submitted

16.3.29. In light of the initial comments of both the MMO and NE we issued a Rule 9 letter [PD 006] seeking further information at PDA prior to the start of the examination. Outstanding information and a summary of all the further information sought were submitted by the applicant at D1 [\[REP1-079\]](#).

16.3.30. The applicant also submitted its 'Response to Relevant Representations' [\[PD1-011\]](#) at PDA prior to the start of the examination.

16.3.31. The applicant made minor revisions to chapter 12 of the ES [\[REP1-032\]](#) and provided an Offshore Ornithology Technical Note 1 (EIA) [\[REP1-080\]](#) in support of its response to NE's combined RR and WR [\[RR-061\]](#).

16.3.32. We considered all these responses and all the information provided both by the applicant and IPs, much of which was by way of clarification, and asked written questions [\[PD-011\]](#) on the following matters:

- cumulative effects assessment
- baseline assessments including oil and gas
- the Liverpool Bay SPA extension
- disorientation of birds due to lighting
- alternative ways of working to reduce effects
- non-breeding season mortality rates for LBBG
- the screening out of bats
- the status of the technical notes submitted at deadline 1: whether in an updated DCO schedule 8 or updated ES/ HRA documents

16.3.33. At issue specific hearing (ISH) 2 the following issues were discussed [\[EV4-001\]](#):

- ecological monitoring
- cumulative effects: other projects, decommissioning

- cumulative effects: coordinated communication and mitigation
- Liverpool Bay SPA displacement
- cumulative effects: gas storage, carbon capture storage and other OWF projects: lack of information leading to possible underestimation of effects

16.3.34. The applicant was able to clarify various aspects of the above issues. Although IoMTSC attended the hearing it made no post-hearing submissions. The remaining issues for discussion in relation to ornithology and bats related mainly to HRA concerns raised by NE.

16.3.35. NE responded to our ExQ3 [[REP5a-071](#)] to say that:

- ‘yellow’ issues could be considered as resolved where so noted
- (RI_B39) it agreed that monitoring of collisions of LBBG was likely to be difficult and produce limited useful information and was supportive of the applicant’s proposals for strategic monitoring in the IPMP [[REP5-026](#)] which could be refined post consent; an overview should be submitted into the examination
- (RI_B40) for RTD the applicant should submit proposals for various monitoring scenarios including contributing to strategic work, which could be refined post consent
- it was content that issues B8, B24, B14 and B19 (gap filling) and B16, B18 and B37 (collision impacts for CEA) had been satisfactorily addressed
- issues B20 (figures to be used in the GBBG assessment) and B21 (cumulative effects and further mitigation for GBBG) remained unresolved. A correction to the ES would resolve issue B20 and in respect of issue B21 it was content that *“the applicant has exhausted potential mitigation options, but a significant cumulative EIA level effect cannot be ruled out for GBBG”*
- it expected that the information submitted at D5a would be sufficient to resolve issue B31 (ports and further mitigation)

16.3.36. The applicant responded to our ExQ3 [[REP5a-056](#)] to say that:

- it noted in its response to ExQ3BEM1 on general outstanding matters that it considered all matters raised by NE to be sufficiently addressed
- in its response to our ExQ3BEM4 and also in response to NE’s comments [[REP5-080](#)] it had updated its Technical Note on the Assessment of Offshore Impacts on Bats over the Irish Sea [[REP5a-050](#)], and had also provided further information and further evidence from the ESs of other OWF in respect of barotrauma in wind turbine-related bat mortality [[REP5a-050](#)] which:
 - acknowledged the lack of data relating to migratory bats crossing the Irish Sea
 - noted that the evidence gap is broader than the project-alone could address
 - offered further conversations with SNCBs
 - included further consideration of barotrauma

- in response to our ExQ3BEM14 it considered that its updated chapter 12 of the ES [REP5-014] had resolved all of NE's outstanding issues except for B31 where it had provided stronger commitments to the use of existing vessel routes in the oVTMP [REP5a-031] and the oPEMP [REP5a-023] but considered that although NE would welcome the updates it would *"remain of the view that the effectiveness of measures would be fully understood once the port selection had been made"* (that is post consent).

ExA's consideration of adequacy of information submitted

- 16.3.37. We have carefully considered the original application documents, the additional information provided in response to our Rule 9 letter [PD1-010] and all the further information and documents submitted during the course of the examination. We have had particular regard to submissions from the applicant and IPs on gap-filling of data, collision risk modelling, the assessment of cumulative displacement effects, the disorientation of birds due to artificial lighting, the screening out of bats, and monitoring.
- 16.3.38. We are broadly satisfied with the applicant's approach to the assessment of potential effects on ornithological receptors and bats, including the selection of study areas and worst case scenarios, and the compilation of the baseline data used in the assessment.
- 16.3.39. We are satisfied that the final versions of all relevant documents contain sufficient information, that this information has enabled the impacts of the proposed development to be properly and adequately assessed, and that suitable mitigation has been proposed in sufficient detail at this stage, noting that the mechanisms are in place to enable satisfactory monitoring to be implemented post-consent when more detailed information is available.

Assessment methodology

- 16.3.40. NE had expressed concerns with the applicant's approach to the CEA and had advocated a two-stage method for gap-filling data in its collision risk model [RR-061] so we had asked for further information in our Rule 9 letter [PD-010] and in response the applicant produced an Offshore Ornithology Technical Note 1 (EIA) [REP1-080].
- 16.3.41. NRW(A) also expressed concerns regarding the CEA [REP1-099] so the applicant updated its Offshore Ornithology Technical Note at D3 [REP3-056].
- 16.3.42. The SoCG with NRW(A) [REP6-036] recorded all matters related to assessment as agreed.
- 16.3.43. NE had responded [REP5a-071, REP5a-072] to our written questions [PD-018] to say that:
- it was content that issues B8, B24, B14 and B19 (gap filling) and B16, B18 and B37 (collision impacts for CEA) had been satisfactorily addressed and had marked them as resolved

- issues B20 (figures to be used in the GBBG assessment) and B21 (cumulative effects) remained unresolved: an error in the ES would resolve issue B20 but issue B21 remained unresolved and *“a significant cumulative EIA level effect cannot be ruled out for GBBG”*

ExA’s consideration of assessment methodology

- 16.3.44. By the close of the examination, all outstanding assessment issues between the applicant, NRW(A) and NE had been resolved, except for cumulative effects on GBBG. We have considered and are satisfied with the applicant’s responses, particularly that a further increase in air gap would not make a measurable difference and noting the small contribution of the proposed development [[REP6-040](#), section 2.4.1].
- 16.3.45. We have considered the latest version of chapter 12 of the ES [REP6-009] and supporting documents, and the applicant’s Technical Note on the Assessment of Offshore Impacts on Bats over the Irish Sea [[REP5a-050](#)]. We note that by the close of the examination NE was satisfied with the applicant’s submissions in respect of evidence from other OWF and barotrauma. Although NE had low confidence in the applicant’s conclusions, this was due to the lack of data rather than any methodological issues. We are also satisfied with the applicant’s assessment methodology, and hence with the results of the assessment of the potential impacts of the proposed development on ornithological receptors and bats.

Mitigation and monitoring

- 16.3.46. NE had responded [[REP5a-071](#)] to our ExQ3BEM2 and ExQ3BEM14 [[PD-018](#)] in respect of pre- and post-construction monitoring to say that:
- (RI_B39) it agreed that monitoring of collisions of LBBG was likely to be difficult and produce limited useful information and was supportive of the applicant’s proposals for strategic monitoring in the IPMP [[REP5-026](#)] which could be refined post consent; an overview should be submitted into the examination
 - (RI_B40) for RTD the applicant should submit proposals for various monitoring scenarios including contributing to strategic work, which could be refined post consent; nothing further expected during examination
 - issue B21 (further mitigation for GBBG) remained unresolved, but it was content that *“the applicant has exhausted potential mitigation options”*
 - it expected that the information submitted at D5a would be sufficient to resolve issue B31 (ports and further mitigation)
- 16.3.47. NRW(A) was content with the mitigation (increasing the turbine air draught height to 25m above HAT) in respect of cumulative kittiwake collisions [[REP6-053](#)].

ExA’s consideration of mitigation and monitoring

- 16.3.48. By the close of the examination, all outstanding issues between the applicant, NRW(A) and NE had been resolved. We are satisfied with the

applicant's responses during the examination and with the mitigation and monitoring proposed.

- 16.3.49. Having considered all submissions made by NRW(A), NE and the applicant, we are satisfied that adequate mitigation, particularly in respect of collision risk, is capable of being achieved through the embedded mitigation in the final design so as to ensure no significant residual effects in EIA terms for the project alone, and that, although cumulative significant residual effects cannot be ruled out for GBBG, the mitigation proposed is all that can be realistically achieved.
- 16.3.50. We have also considered the latest versions of the oPEMP [REP5a-023], the oVTMP [REP5a-031] and the IPMP [REP6-017]. We note that MMO is satisfied with the applicant's monitoring proposals and that by the close of the examination NE considered that agreement of detailed monitoring proposals post-consent was acceptable. We are satisfied with the applicant's approach in respect of relevant and proportionate monitoring and that the final versions will be capable of controlling, monitoring and mitigating the potential impacts on birds and bats so as to achieve no significant effects in EIA terms and would be secured under the dDCO [[REP6-002](#)].

ExA's overall consideration of effects on offshore ornithology and bats

- 16.3.51. The main issues of concern during the examination related to cumulative effects on birds, in terms of the adequacy of information submitted with the original application, the assessment methodology (particularly regarding the adequacy of data and methodology for the assessment of cumulative effects), the proposed mitigation (the increase in air gap from 22m to 25m HAT), and the proposals for monitoring of bats.
- 16.3.52. Having reviewed the original application and all the additional information and revisions to the application documents, we are satisfied with the applicant's methodology and that all relevant impacts have been properly assessed. We have also reviewed the applicant's Technical Note on the Assessment of Offshore Impacts on Bats over the Irish Sea [[REP5a-050](#)] and agree that the number of collision victims would be hard to determine and would not be representative of the wider population, so we are content that monitoring would serve no useful purpose.
- 16.3.53. The main outstanding issues towards the end of the examination related to the assessment of cumulative effects, particularly collision risk, and whether the additional mitigation offered by the applicant in respect of potential significant effects was sufficient. Having reviewed all submissions from the applicant and from IPs, we note NE's position that significant adverse cumulative impacts at the EIA scale cannot be ruled out for GBBG. However we are satisfied with the applicant's mitigation proposals, in particular that no further mitigation in respect of cumulative GBBG collision risk is feasible and that the mechanisms exist within the final versions of the application documents to mitigate all outstanding significant effects post-consent.

- 16.3.54. However, the applicant has acknowledged the various adverse effects of the proposed development, and it is our view that they have been mitigated as far as reasonably practicable but that adverse effects remain. Although no residual effect has been assessed as greater than minor adverse for the project alone, potentially significant cumulative residual effects for GBBG cannot be ruled out, so we consider that, taken together, these effects would result in a moderate negative harm which would carry moderate negative weight in the planning balance.

16.4. CONCLUSIONS

- 16.4.1. We have considered and assessed all submissions made by the applicant and IPs as the examination progressed, and have put questions to the parties both orally and in writing to obtain clarification of important and relevant issues as necessary, and conclude as follows:
- impacts on ornithological receptors and bats have been properly considered and a satisfactory assessment has been carried out.
 - the applicant has responded satisfactorily to all representations made by IPs.
 - all important and relevant issues in relation to offshore ornithology and bats are now resolved.
 - the impacts of the proposed development may result in some significant effects, but we are satisfied that sufficient mitigation measures including monitoring would be secured in the rDCO and incorporated into the design, construction, operation and maintenance of the proposed development to ensure that any remaining residual significant effects have been mitigated as far as possible
- 16.4.2. The proposed development would give rise to some minor adverse residual effects on ornithological receptors and bats, but potentially significant cumulative residual effects on GBBG. Overall, we consider that effects taken together would carry moderate negative weight in the planning balance.
- 16.4.3. Consequently, we conclude that the proposed development would comply with:
- paragraphs 5.4.17 in respect of EIA and 5.4.22 in respect of assessment of effects on mobile/migratory species (birds and bats).
 - paragraphs 5.4.35 (mitigation), 5.4.42 (mitigation hierarchy) and 5.4.44 (securing of mitigation) of NPS EN-1.
 - paragraphs 2.8.138 (as-built parameters), 2.8.143 (surveys) and 2.8.144 (CRM) of NPS EN-3 in respect of assessment of impacts and mitigation.
 - paragraphs 2.8.240 (lighting), 2.8.241 (rotor height) and 2.8.242 (vessel routes) of NPS EN-3 in respect of mitigation.
 - paragraphs 2.8.315 (collision risk and displacement assessments) and 2.8.316 (conservation status, cumulative and in-combination impacts) of NPS EN-3 in respect of impacts on birds, which require the SoS to be satisfied that collision risk and displacement assessments have been conducted to a satisfactory standard having had regard to advice from the

relevant statutory adviser and that cumulative and in-combination impacts on seabird species have been considered.

- the relevant policies of the NWMP, particularly policy NW-DIST-1 which says that proposals which may have significant effects through disturbance or displacement must demonstrate that they will, in order of preference, avoid, minimise, and mitigate adverse impacts so that they are no longer significant

17. ONSHORE CULTURAL HERITAGE

17.1. INTRODUCTION

17.1.1. This chapter deals with the effects of the proposed development on the settings of land-based historic heritage. The effects on offshore historic heritage are dealt with in chapter 12 dealing with marine archaeology.

17.1.2. In our consideration of historic heritage, we have had regard to:

- the requirements of the Overarching National Policy Statement of Energy (NPS EN-1), and in particular section 5.9, and the National Policy Statement for Renewable Energy (NPS EN-3), paragraph 2.3.8 and section 2.8
- the relevant policies of the North West Inshore and North West Offshore Marine Plan (NWMP), particularly Policy NW-HER-1
- any matters prescribed in relation to the development, including:
 - Regulation 3 of the Infrastructure Planning (Decisions) Regulations 2010 (the Decisions Regulations)
- any other important and relevant matters, including:
 - the National Planning Policy Framework (the Framework) and Planning Practice Guidance

17.2. THE APPLICATION

17.2.1. The applicant's case in relation to land based cultural heritage was set out in environmental statement (ES) chapter 15 [\[REP3-022\]](#) accompanied by appendix 15.3 providing a 'Settings Assessment' [\[REP3-030\]](#) and various figures within [\[APP-099\]](#).

17.2.2. The assessment was informed by, and took into account, the findings and conclusions of other relevant topics and chapters of the ES. Those chapters included:

- Chapter 18 'Seascape, Landscape and Visual Impact Assessment' [\[REP3-026\]](#).

17.2.3. The opening sections of this chapter dealt with the overall focus of those documents and set out the consultations that occurred prior to the submission of the application.

17.2.4. The applicant set out its view of the realistic worst-case scenario for this topic, in [\[REP3-022\]](#), table 2.1]. The decommissioning phase has yet to be defined with the applicant indicating that this would be dealt with later under the requirements of other legislation.

BASELINE

17.2.5. The applicant noted that, at its closest point, the application site is located approximately 30 kilometres (km) offshore. Consequently, the wind turbine

generators (WTG) and offshore substation platforms (OSP) may be visible from coastal heritage assets and consequently the proposed development may have an effect on the setting of these assets.

- 17.2.6. Following discussions with Historic England (HE) and the Marine Management Organisation (MMO) it was agreed that a high level screening assessment would be undertaken, and a 50km buffer around the extent of the application site would be suitable. Due to the high number of heritage assets within this buffer ([[REP3-030](#), figure 1.2]) the applicant only assessed assets with views out to sea or which have a relationship to the sea which forms part of this setting.
- 17.2.7. In order to determine the sea settings of land based heritage assets the applicant set out its understanding of the historic seascape character, that is the attributes that contribute to the formation of the historic character of the seascape. The applicant considered that this should be described based on how that character is perceived by the public. The applicant considered the seascape to be dynamic in nature and that all aspects, no matter how modern or fragmentary, can form part of the character of the seascape.
- 17.2.8. The applicant considered that it is not meaningful to assign a level of importance to these perceptions of character as it considered them to be subjective. It considered that change should be expressed as a narrative description of the seascape character, how it is perceived by the public and how these perceptions may change.
- 17.2.9. The applicant referred to HE funded mapping of the coastal and marine areas around England. It did note, however, that no previous character types have been identified within the application site. It therefore went on to look at the following broad character types as set out in table 15.22 of chapter 15 of the ES [[REP3-022](#)]. These are:
- communications
 - industry
 - navigation
 - cultural topography
 - fishing
- 17.2.10. A total of 73 designated heritage assets whose setting may be impacted by the proposed development was initially identified by the applicant. These assets comprise:
- the Lake District World Heritage Site
 - thirteen Scheduled Monuments
 - three Registered Parks and Gardens
 - seven Grade I listed buildings
 - nine Grade II* listed buildings
 - twenty seven Grade II listed buildings
 - thirteen conservation areas

- 17.2.11. The applicant noted that the process was informed in consultation with the seascape, landscape and visual impact assessment (SLVIA) consultants (see chapter 18 of this report). Furthermore, the non-heritage specific SLVIA photomontages ([[APP-109](#)] to [[APP-139](#)]) were also used to inform the settings assessment. Thus the 'long-list' of 73 heritage assets was reduced to a 'short-list' of 37 for further detailed assessment. These are set out in paragraph 47 of the 'Settings Assessment' [[REP3-030](#)] and consist of 9 groups of heritage assets totalling 28 assets, with the remaining assessed individually.

ASSESSMENT OF EFFECTS

- 17.2.12. The only impact identified and assessed by the applicant that is relevant to land based heritage was the effects on the setting, and thus significance, of coastal (terrestrial) designated heritage assets.

Construction Effects

- 17.2.13. The applicant maintained that changes in setting due to construction activity would be temporary and of sufficiently short duration that they would not be anticipated to give rise to material harm. The applicant therefore originally assessed these as having a 'negligible adverse' significance which would not be significant in environmental impact assessment (EIA) terms [[REP3-022](#)].

Operational and Maintenance Effects

- 17.2.14. The applicant considered that, during the operational life of the proposed development, the presence of WTGs and OSP(s) would introduce permanent visible infrastructure which would affect the setting of these coastal heritage assets.
- 17.2.15. In the applicant's view, while the proposed development would be visible from the designated heritage assets along the coastline, it would not detract from their archaeological, historical and architectural interests. It also maintained that the WTGs/ OSP(s) would only be visible on a clear day and would enter into a seascape already dominated by the offshore wind industry. The applicant therefore considered there would be 'no change' to the significances of the designated heritage assets as regards their settings [[REP3-022](#), paragraph 15.240].

Decommissioning

- 17.2.16. The applicant accepted that decommissioning may result in further change to the setting of coastal heritage assets with the removal of the offshore infrastructure. Furthermore, the presence of vessels, personnel and infrastructure associated with decommissioning activities would also temporarily affect the setting. However, the applicant maintained that, as with construction, these impacts would be temporary and reversible, and the significance of this effect would therefore be 'negligible adverse' as the setting would change in a way that does not materially affect its cultural significance [[REP3-022](#), paragraph 15.263].

Cumulative Effects

- 17.2.17. In table 15.25 in chapter 15 of the ES [\[REP3-022\]](#) the applicant set out a screening of potential cumulative effects dependent on the nature of impacts. During the construction phase it considered that there would be a potential cumulative effect for direct physical impacts on potential heritage assets. This would also apply during the operation and maintenance and decommissioning phases.
- 17.2.18. Table 15.26 of chapter 15 of the ES [\[REP3-022\]](#) set out the various projects considered for cumulative environmental assessment (CEA) in respect of cultural heritage.
- 17.2.19. Initially, the applicant did not consider cumulative effects of land based elements of the M&MTA proposal with the proposed development for cumulative effects. At ExQ1CH9 [\[PD-011\]](#) we asked whether the addition of 'negligible adverse' effects on significance could lead cumulatively to harm. In response, the applicant indicated [\[REP3-068\]](#) that there were no common receptors, and consequently no cumulative effects would arise.

17.3. ISSUES CONSIDERED DURING THE EXAMINATION

THE CASE FOR INTERESTED PARTIES

Historic England

- 17.3.1. HE [\[REP1-095\]](#) in paragraph 4.10 of its written representation did not agree with the applicant's "*attempt*" to identify public perception or how it is thought that the proposed development could accommodate change in reference to the broad character types set out in paragraph 17.2.9. However, as HE considered the applicant had set out the historic seascape character in order to provide context and in consideration of the other data provided, it had no further comments to make on this.
- 17.3.2. HE [\[REP1-095\]](#) noted in paragraph 6.2 that there is quite a lot of duplication among the highly graded historic assets listed due to dual-designated sites (that is both scheduled monuments and listed buildings). Notwithstanding this, due to the "*considerable distance away*", and that there are already numerous WTGs visible in the distance from Blackpool, Heysham and Cockersand HE sees no reason to question either the assessment or the conclusions so that there would be no change to the significance of the designated heritage assets.
- 17.3.3. In the statement of common ground (SoCG) [\[REP5a-044\]](#) at point HE 5, HE "*do not consider there to be any change in the significance of the identified designated heritage assets as related to changes in their setting*".

Cadw

- 17.3.4. Cadw [\[RR-015\]](#) considered that as the nearest WTGs would be over 50km from the Welsh coast it did "*not envisage that the proposed wind farms will*

have any significant impact on the settings of any designated historic assets in Wales”.

Lancashire County Council

- 17.3.5. In its SoCG with the applicant [[REP5a-045](#), point LCC 5] Lancashire County Council (LCC) indicated it *“does not wish to raise any concerns in regard to visual effects on historical assets”*.

ISSUES

- 17.3.6. It can be seen that there was little discussion about the effects of the proposed development on land based cultural heritage. There would no direct effects on land based heritage assets, and any effects would only be on setting.

- 17.3.7. However, particularly in light of our findings in relation to seascape, landscape and visual effects (chapter 18 of this report), we consider that for historic heritage (land) the main important and relevant issues for reporting are:

- assets assessed
- intervisibility
- assessment terminology
- cultural rationale for assets

Assets assessed

- 17.3.8. The applicant’s assessment only appeared to assess designated heritage assets, and did not include any assessment of non-designated heritage assets. In ExQ1CH4 [[PD-011](#)] we asked HE and affected local authorities whether they agreed with the applicant’s assessment as to the assets, designated and non-designated, which should have been assessed.
- 17.3.9. No local authority responded to this question. HE responded [[REP3-081](#)] that it agreed with the assessment conducted by the applicant.

ExA’s consideration on assets assessed

- 17.3.10. In light of the responses received we are satisfied that the relevant heritage assets have been considered. This includes both designed and non-designated heritage assets.

Intervisibility

- 17.3.11. The application site is a minimum of 29.2km from the shore at Blackpool, so the ‘worst-case’ for the length of time that the proposed development could be seen would only occur when visibility was greater than this distance.
- 17.3.12. Paragraph 35 of the original appendix 15.3 ‘Settings Assessment’ [[APP-077](#)] set out a list of *“likely frequency of visibility”* for the proposed development based on distance. This was said to be derived from table 18.10 of ES chapter 18 [[APP-055](#)]. However, as we pointed out in ExQ1CH1 [[PD-011](#)]

the information in [APP-077] used discrete visibility periods for different visibility ranges rather than cumulative visibility periods for all ranges up to that distance.

- 17.3.13. In its response [REP3-068] the applicant acknowledged its error and submitted a revised appendix 15.3 [REP3-031]. However, it noted in its response to ExQ1CH1 that paragraph 34 of Appendix 15.3 stated *“In all cases, an absolute worst-case assessment has been made, assuming ideal weather conditions for maximum visibility of the proposed development”*. Therefore, the applicant asserted, *“this will not change the conclusions of the setting assessment”*.
- 17.3.14. As set out in paragraphs 18.2.16 and 18.2.17 in chapter 18 of this report, the applicant investigated visibility from the Walney Met Office station. While the applicant has considered what it considers to be worst-case scenarios, it must be recognised in assessing whether there would be any harm to the setting of any heritage asset, the proportion of time in which the setting would be affected. Appendix B of [REP3-038] sets out in detail visibility ranges (see further discussion of this in paragraphs 18.3.5 to 18.3.7 of this report). The closest heritage assets are on the Blackpool seafront where, on average, for 145 days each year, or 40% of the time, there would be no intervisibility between the application site and any heritage assets. On average, there would be intervisibility therefore for 216 days per year.
- 17.3.15. Having said that, it would be possible for a viewer located on a boat between the application site and coast to appreciate both the proposed development and existing onshore heritage assets at the same time when there was poorer visibility. To do this would require at least 15km visibility (halfway between the application site and the shore), which is achieved on 249 days of the year (68%).

ExA's consideration on intervisibility

- 17.3.16. In light of the data provided as to visibility from a nearby weather station which will show conditions in the area, we are satisfied that the applicant has undertaken a reasonable assessment of the length of time in which the proposed development would have an effect on the coast, and has undertaken its assessment in relation to a worst-case situation.

Assessment terminology

- 17.3.17. In ExQ1CH6 we sought to clarify with the applicant the relationship between the EIA assessment significance terminology as set out in table 15.12 of chapter 15 of the ES [REP3-022] and that relating to harm to significance as set out in section 5.9 of NPS EN-1.
- 17.3.18. The applicant responded *“negligible adverse has been used to characterise very minimal change in conditions to some of the identified heritage assets as a result of the Project. These changes would be too limited to give rise to any change in the contribution of setting to significance and therefore would not constitute harm as defined in NPS EN-1.”*

ExA's consideration on assessment terminology

- 17.3.19. As the Courts have made clear, doing no harm to the significance of a heritage asset represents 'preserving' it, and this would apply as much to the setting of a heritage asset as to the asset itself. We have therefore taken the applicant's position as being that it considered that the settings, and thus the individual significances, of all the heritage assets identified would be preserved.

Cultural rationale for assets

- 17.3.20. We were concerned that the applicant's assessment concentrated too much on the immediate settings of the heritage assets identified in coastal locations, and perhaps did not consider sufficiently the proposition that these assets only existed because of their relationship to the sea, and thus whether any interruption to the existing seascape would affect their settings (see ExQ1CH7 [\[PD-011\]](#)).
- 17.3.21. The applicant responded to this in [\[REP3-068\]](#), noting that it considered that *"the visibility of the Project on the horizon will not detract from the viewers ability to view and appreciate the historic and architectural interest of the [North Promenade, Blackpool conservation area (the CA)]"*. However, as the WTGs *"would only be visible in very distant elements of the background of views to the sea from the seafront and the sea view rooms of the [Grade I listed Imperial Hotel]. Therefore, they would not consequently affect the historic perceptual connection to the sea. The turbines would not be visible in views of the heritage assets which contribute to significance through allowing the architectural interests of the historic buildings within the CA or the wider architectural compositions to be appreciated"*.

ExA's considerations of the effect on land based heritage assets

- 17.3.22. Our assessment of the effects of the proposed development on the significance of the heritage assets along the coast coincides with that of the applicant for most of the heritage assets identified. That is any effects would be 'negligible' and the settings, within the terms of NPS EN-1, would be 'preserved'.
- 17.3.23. However, as set out in chapter 18 of this report, we consider that the applicant has underestimated the effect of the proposed development on the seascape and when viewed from the section of coast between Fleetwood and Lytham St Anne's. Shortly, this is because it has underestimated the effects from the gap erosion between the existing OWFs off the Barrow coast and those off the North Wales coast. This applies predominantly in the 'project-alone' scenario.
- 17.3.24. We consider it appropriate to apply this same critique to the consideration of effect on the significance of land based heritage assets. In our view, therefore, the applicant's assessment has underestimated the effect on the settings and thus the effect on the significances of the various heritage assets along this section of the coast.

- 17.3.25. Paragraph 15.239 of chapter 15 of the ES [\[REP3-022\]](#) sets out the list of terrestrial heritage assets which the applicant considers could be affected by the proposed development. Our concerns relate to the following heritage assets which are located in this section of coast:
- North Promenade, Blackpool Conservation Area:
 - Imperial Hotel - Grade II listed building (LB) – (List Entry: 1072011)
 - Town Centre, Blackpool Conservation Area
 - Tower Buildings (Blackpool Tower) - Grade I LB - (List Entry: 1205810)
 - North Pier - Grade II LB – (List Entry: 1205766)
 - Clifton Hotel - Grade II LB - (List Entry: 1362393)
 - Promenade Shelters - Grade II LB - (List Entry: 1205804, 1072012, 1072013)
 - Porritt Houses/ Ashton Gardens Conservation Area
 - St Anne's Pier - Grade II LB – (List Entry: 1196341)
 - Promenade Gardens, Lytham St Anne's – Registered Park or Garden (List Entry: 1001491)
 - Bandstand Approximately 70 Metres Southeast of St Anne's Pier - Grade II LB - (List Entry: 1196339)
 - Lifeboat Monument Approximately 100 Metres Southeast of St Anne's Pier - Grade II LB - (List Entry: 1196340)
 - Octagonal Pavilion Approximately 130 Metres Southeast St Anne's Pier - Grade II LB - (List Entry: 1219352)
 - Promenade Shelter Opposite West End of Boating Pool - Grade II LB - (List Entry: 1297673)
 - Promenade Shelter Opposite West End of Open-Air Baths - Grade II LB - (List Entry: 1219362)
 - Grand Hotel with Front Garden Wall - Grade II LB - (List Entry: 1219349)
 - Lytham Avenues Conservation Area
- 17.3.26. We have considered each of the assets along this section of coast in turn and the following comments apply to all of the designated heritage assets.
- 17.3.27. While the applicant has acknowledged the relationship of each of the heritage assets to the sea, in our view it has underestimated that relationship. For example, looking at the North Promenade, Blackpool Conservation Area paragraphs 105 and 106 of appendix 15.3 of the ES [\[REP3-030\]](#) set out that by the end of the 18th century Blackpool was a fashionable seaside resort for the wealthy, with the town growing through the 19th century.
- 17.3.28. The applicant considered, in paragraph 111, that the significance of the Blackpool conservation area can be *“summarised by its importance as an almost complete townscape of large hotels and leisure features developed in the early 20th century. Its spatial qualities are also of significance, as there are good views to the north and the Promenade and seafront walkways*

retain their original layout. The southern part of the area is less complete but retains some good mid 19th century buildings”.

- 17.3.29. In our view, this underestimates the historic reason for the development of the conservation area and the various *“key features and buildings which contribute to the significance of the CA”* [REP3-030, paragraph 112], which is the coast and uninterrupted views out to sea. With the proposed development, when it is visible, an uninterrupted arc of view would be lost.
- 17.3.30. The magnitude of the impact of the proposed development on the heritage assets identified and their cultural importances, as set out in paragraph 112 of appendix 15.3 [REP3-030] of the ES, have therefore too been underestimated. For example, while the applicant has particularly identified the significance of the Grade I listed Imperial Hotel, *“largely derived from its architectural interest, historic interest, aesthetic value and communal value (due to its association with celebrities, members of the Royal family and politicians”* (see paragraph 122), we consider that it has not given sufficient weight to the relationship to the sea. This means that the partial loss of seascape setting would result in a loss of significance.
- 17.3.31. This applies to all the heritage assets along this section of coast as set out in paragraph 17.3.25. In simple terms, without the sea, the heritage assets would not be there.
- 17.3.32. In making our assessment, we disagree with the applicant where it says the presence of the proposed development *“would not detract from its archaeological, historic and architectural interest”* [REP3-022, paragraph 15.240]. While we agree with the applicant that the proposed development would only be visible on a clear day and relatively low in the view, we consider it would not *“enter a seascape already dominated by the offshore wind industry”*. As noted in paragraph 17.3.23, this section of the seascape is not so dominated.
- 17.3.33. We consider that elements of the asset’s setting which contribute to its cultural significance could be affected, resulting in a slight loss of cultural significance. This would only occur when there was intervisibility between the application site and the affected heritage assets, see paragraphs 17.3.14 and 17.3.15. With reference to the criteria in table 15.11 of the ES [REP3-030] we therefore consider that this could result in ‘low adverse’ effects rather than ‘negligible’ effects. When visibility was ‘poor’ there would be no change.
- 17.3.34. Utilising the applicant’s ‘significance of effect matrix’ [REP3-022, table 15.12], for the ‘high’ importance assets [REP3-022, table 15.10], that is Grade I and II* and conservation areas containing buildings and structures with high heritage importance (that is the Grade I and II* listed buildings), results in ‘moderate’ adverse effects. No mitigation can be secured meaning that in EIA terms there would be a ‘moderate adverse’ significance of effect which is significant in EIA terms.

- 17.3.35. For the assets of ‘medium’ importance, in this context the Grade II listed buildings, ‘designated special historic landscapes’ (here registered parks and gardens), and other conservation areas similar considerations would apply. Following table 15.12 [\[REP3-022\]](#) there would be a ‘minor adverse’ effect. While this would not be significant in EIA terms, this does not equate with the setting of the asset being preserved since there would be some loss of significance.
- 17.3.36. The effect would only be on the setting of the assets and the significances associated with that. As paragraph Reference ID: 18a-018-20190723 of the Planning Practice Guidance makes clear, ‘substantial harm’ is a high test. That paragraph continues, indicating that the test as to whether a proposal would result in ‘substantial harm’ or ‘less than substantial harm’ is whether the harm seriously affects a key element of the special architectural or historic interest. In our view for no heritage asset would this be the case.
- 17.3.37. Therefore, utilising the degrees of harm set out in NPS EN-1, in our view, both situations would represent ‘less than substantial harm’ to the settings and significance of the assets identified. Given that further mitigation would not be possible, this then needs to be considered in the overall planning balance.

17.4. CONCLUSION

- 17.4.1. We are satisfied that the applicant has undertaken an assessment of the heritage assets whose significance may be affected by the proposed development, setting out those significances and how they can be understood in line with paragraphs 5.9.9, 5.9.10 and 5.9.12 of NPS EN-1.
- 17.4.2. We have considered the effect of the proposed development on terrestrial heritage assets and have concluded that there would be less than substantial harm to the settings of the designated heritage assets identified in paragraph 17.3.25. This conclusion will feed into the overall assessment and planning conclusions at chapter 23 of this report.
- 17.4.3. Considerable importance and weight should be given to any heritage asset’s conservation with greater weight given the more important the asset. In accordance with paragraphs 5.9.27 and 5.9.28 of NPS EN-1, and paragraph 212 of the Framework, and great weight and importance should be given to any harm to a heritage asset in the overall balance in line with regulation 3 of the Infrastructure Planning (Decisions) Regulations 2010.
- 17.4.4. Paragraph 5.9.32 of NPS EN-1 indicates that where a proposed development would lead to less than substantial harm to a designated heritage asset, this harm should be weighed against the public benefits of the proposal, and this is done in chapter 23 of this report below. Paragraph 2.3.8 of NPS EN-3 notes that the Secretary of State should take into account the positive role that large-scale renewable projects play in the mitigation of climate change, the delivery of energy security and the urgency of meeting the net zero target.

- 17.4.5. Similarly, Policy NW-HER-1 of the NWMP notes that where proposals may cause harm to the significance of heritage assets, proponents must demonstrate a hierarchical approach. The policy continues that if it is not possible to mitigate, then public benefits for proceeding with the proposed development must outweigh the harm to significance.

18. SEASCAPE, LANDSCAPE AND VISUAL EFFECTS

18.1. INTRODUCTION

18.1.1. This chapter deals with the effects of the proposed development on seascape landscape and visual receptors. Matters relating to the effect on land-based cultural heritage receptors, including on their settings, are considered in chapter 17.

18.1.2. In our consideration of seascape, landscape and visual effects, we have had regard to:

- the requirements of the following designated national policy statements
 - Overarching National Policy Statement for Energy (NPS EN-1) in particular section 5.10
 - National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) in particular section 2.8
 - National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) in particular sections 2.9 to 2.11
- the relevant policies of the UK Marine Policy Statement
- the relevant policies of the North West Inshore and North West Offshore Marine Plan (NWMP), including Policy NW-SCP-1
- any matters prescribed in relation to the development, including:
 - National Parks and Access to the Countryside Act 1949 (the National Parks Act)
 - Countryside and Rights of Way Act 2000 (the CRow Act)
- any other important and relevant matters, including:
 - the National Planning Policy Framework (the Framework)

18.2. THE APPLICATION

18.2.1. The applicant's case in relation to seascape, landscape and visual effects was set out in chapter 18 of the ES [\[REP3-026\]](#), supported by three appendices dealing with Seascape Landscape and Visual Impact Assessment (SLVIA) Methodology [\[APP-083\]](#), SLVIA Preliminary Assessment [\[REP1-052\]](#) and SLVIA Viewpoint Assessment [\[APP-085\]](#). There were also 71 figures (with various sub-figures) [\[APP-106\]](#) to [\[APP-139\]](#) (excluding [\[APP-107\]](#)) and [\[REP3-038\]](#).

18.2.2. The assessment was informed by, and took into account, the findings and conclusions of other relevant topics and chapters of the ES. Those chapters included:

- chapter 15 'Marine Archaeology and Cultural Heritage' [\[REP3-022\]](#)
- chapter 19 'Human Health' [\[REP6-011\]](#)
- chapter 20 'Socio-economics, Tourism and Recreation' [\[APP-057\]](#)

- 18.2.3. The applicant's assessment was based on what it believes is the 'worst-case' scenario as set out in table 18.2 of chapter 18 of the environmental statement (ES) [\[REP3-026\]](#). The assumed locations for these for the purposes of the assessment are shown in Figure 18.1 [\[APP-106\]](#).
- 18.2.4. The applicant has set out that it has utilised four design principles, as it calls it, to "shape" the proposed development. These are set out in the Design Statement [REP4-007, table 4.1] and include responding to "its seascape and views out to sea" as part of a 'Planet Positive' approach. It is noted that the layout consideration would be given to micro-siting including "for seascape, landscape and visual impact reasons", [REP4-007, point DC3 in table 6.1].

BASELINE

- 18.2.5. The 'Seascape, Landscape and Visual Assessment (SLVIA)' was informed by desk-based studies and field survey work. It was undertaken, according to the applicant, in accordance with the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3), and other best practice guidance. However, in section 4.1 of appendix 18.1 of the ES [\[APP-083\]](#), the applicant explained why it did not follow GLVIA3 methodologies in all respects.

Seascape/ Landscape

- 18.2.6. In order to assess the degree of change, the applicant undertook an evaluation of sensitivity to change taking account of the value of the seascape/ landscape or visual resource. In order to take account of the temporal nature of effects, the applicant defined them as follows ([\[REP3-062\]](#), paragraph 18.62):
- long-term – more than 10 years
 - medium-term – 6 to 10 years
 - short-term – up to 5 years
- 18.2.7. The applicant set out its view that seascape character principally applies to coastal and marine areas seaward of the low watermark. It considered that seascape is about the relationship between people and place and the part it plays in informing the setting to people's lives. Seascape results from the way that the different components of the environment, both natural and cultural, interact and are understood and experienced by people.
- 18.2.8. The applicant's SLVIA notes that paragraph 2.8.209 of NPS EN-3 provides a definition of seascape and also takes account the definitions of seascape that are set out in the UK Marine Policy Statement.
- 18.2.9. While the applicant noted that seascape relates principally to marine areas and landscape to terrestrial areas, it considered that there is a subtler transition between the two, and the interaction between sea, coastline and land is highlighted in these definitions.
- 18.2.10. The baseline description of the seascape was informed by the 'Seascape Character Assessment for the North-West Inshore and Offshore Marine Plan

Area', and the 'National Seascape Assessment for Wales'. Both these assessments identify Marine Character Areas (MChAs) and these are shown in figure 18.9 [\[REP3-038\]](#).

18.2.11. The applicant looked in particular at:

- MChA 31: St Bees to Haverigg Coastal Waters
- MChA 32: Walney Coastal Waters and Duddon Estuary
- MChA 33: Morecambe Bay
- MChA 34: Blackpool Coastal Waters and Ribble Estuary

18.2.12. The applicant noted that the visual context of the SLVIA study area includes a number of key visual elements and vertical infrastructure components which influence the nature of views experienced. These include:

- offshore wind farms (OWF), forming prominent moving structures within the seascape
- Sellafield nuclear power station and associated industrial development at the mouth of the River Calder
- Rampside Gas Terminal to the east of Walney Island
- Heysham nuclear power station
- the offshore Lennox platform, being the closest to shore of the five interlinked sites currently operational in Liverpool Bay
- Morecambe gas field and associated offshore platforms around the application site
- prominent landmarks such as the Blackpool Tower and rollercoaster

18.2.13. The applicant considered landscape character principally relates to terrestrial areas, with a hierarchy of Landscape Character Assessments based on national, county and district levels. The applicant also noted there is an Isle of Man Landscape Character Assessment.

18.2.14. Given the multiplicity of such assessments these are not set out in this report, but details for national areas can be found in tables 2.1 and 3.1 of appendix 18.2 [\[REP1-052\]](#) (see also figure 18.10 [\[REP3-038\]](#)) and for county area tables 4.1 and 5.1 of appendix 18.2 [\[REP1-052\]](#) (see also figure 18.11 [\[REP3-038\]](#)).

18.2.15. Furthermore, the applicant identified a number of landscape areas which have been designated for their scenic or historic landscape qualities. These, along with the distances to the application site, are:

- Lake District National Park (LDNP) which is located approximately 43.3 kilometres (km) from the application site; the special qualities are defined in the LDNP Management Plan 2020-2025
- National Landscapes (formerly areas of outstanding natural beauty):
 - Arnside and Silverdale – greater than 50km
 - Forest of Bowland – greater than 50km
 - Isle of Anglesey (Ynys Môn) – greater than 47km
 - Clwydian Range and Dee Valley – greater than 47km

- various Registered Parks and Gardens all of which are located 30km to 40km from the application site and are within urban settings. These include:
 - Blackpool (Stanley Park)
 - Lytham St Anne's (Lytham Hall, Ashton Gardens, Promenade Gardens)
 - Fleetwood (Memorial Park, The Mount); and
 - Southport (King's Gardens, Hesketh Park, Scrisbeck Hall)

Views and visual amenity

- 18.2.16. In order to assess visibility, the applicant interrogated Met Office data for its station at Walney Island. Table 5, which is based on table 18.10 of chapter 18 of the ES [REP3-026], sets out visibility frequency. The applicant reported that no visibility over 60km has been recorded by the Met Office at Walney Island.

Table 5: Visibility from Walney Island Met Office Station

Visibility Range	Visibility Definition	% Visibility frequency (over 10 years)	Days per year visibility frequency (10-year average)	Cumulative % (days when can see this far)	Cumulative Days (days when can see this far)
1km	Very Poor	0.6	2.2	100.0	364.9
1-4km	Poor	2.7	9.9	99.4	362.7
4-10km	Moderate	12.0	43.8	96.7	352.8
10-20km	Good	26.9	98.0	84.7	309.0
20-30km	Very good	18.4	67.2	57.8	211.0
30-40km	Very good	15.0	54.8	39.4	143.8
40-50km	Excellent	14.8	54.0	24.4	89.0
50-60km	Excellent	9.6	35.0	9.6	35.0
>60km	Excellent	0.0	0.0	0.0	0.0

- 18.2.17. The applicant considered that visual effects would only occur when the proposed development changes or influences the visual amenity and views experienced by people in the area. The applicant prepared zones of theoretical visibility (ZTV) which are shown in figures 18.5 and 18.5a to d [APP-106]. The applicant noted that the ZTV is based on 'bare-earth' terrain and did not take account of atmospheric clarity and therefore, the applicant maintained, shows the worst-case theoretical visibility of the proposed development.
- 18.2.18. Paragraphs 18.104 and 18.105 of chapter 18 of the ES [REP3-026] set out the applicant's descriptions of the coastal landscapes from the Cumbrian coastline, through the Blackpool, Fylde and Liverpool areas, and along the North Wales coast to the Isle of Anglesey.

- 18.2.19. The applicant considered that the main areas where the tips of the blades of the wind turbine generators (WTG) would be seen would be within 30km of the application site. This is more or less entirely maritime. However, it noted that there may be visibility from the immediate coastal edges around the Irish Sea including the coastlines of Cumbria, Lancashire, Merseyside and the Wirral, North Wales, Anglesey and potentially the Isle of Man. Beyond these coastlines, the largest area with high theoretical visibility of the proposed development would extend between the most easterly part of Morecambe Bay and the Dee Estuary. This area of the ZTV generally lies within 30km of the coast. Further inland, areas with higher visibility were considered by the applicant to be patchy and constrained to the western Pennine hills.
- 18.2.20. To assess the screening effects from woodlands and buildings the applicant drew up a ZTV taking account these features. This can be found in figure 18.6 [APP-106]. The applicant's view is this provided a more realistic impression with visibility of the proposed development likely to become low and very limited and scattered in extent due to intervening screening by the near continuous areas of built development along many sections of the coast.
- 18.2.21. The applicant considered that visibility from streets, open spaces and low storey buildings, within coastal urban areas, would typically be contained within the urban environment by surrounding built forms. Consequently, most visibility over the proposed development would be restricted to sea front or tall buildings or where intervening open areas would allow visibility from further inshore.
- 18.2.22. In order to ascertain how much of the horizontal field of view in any location would be occupied by the proposed development the applicant prepared a 'horizontal angle' ZTV which is shown in figure 18.8 [REP3-038]. This showed that within the application site itself the field of view would exceed 180° and within approximately 4km to the north and south would occupy between 90° and 180°, that is between 25% and 50% of the field of view. These areas of greatest effect would, according to the applicant, only occur in areas of seascape within the Irish Sea and would not be experienced in coastal views. In coastal views the horizontal field of views would be much reduced to between 10° and 20° due to the distance between the coast and the application site.
- 18.2.23. The applicant made the following points:
- horizontal field of view decreases considerably with distance
 - for almost all onshore areas within the SLVIA study area, the proposed development would occupy less than 20° of the horizontal field of view
 - from the distant areas, including parts of the Isle of Anglesey, and inland areas of Northwest England, the proposed development would occupy less than 10° of the horizontal field of view
 - in views from Cumbria, Merseyside and North Wales the proposed development would be viewed beyond the existing spread of operational

OWFs and would add little or nothing to the current spread of WTGs in views.

18.2.24. The applicant identified the principal receptors, set out in paragraph 18.117 of chapter 18 of the ES [\[REP3-026\]](#) as being (with distances to the application site where cited):

- coastal settlements:
 - Heysham – 45km
 - Blackpool – 29km
 - Lytham St Anne's – 29km
 - Southport – 33km
 - Crosby – 40km
 - Liverpool – 44km
 - Prestatyn – 47km
 - Colwyn Bay – 51km
 - Llandudno – 48km
- long distance paths and cycle routes
- public rights of way
- main road routes
- rail routes
- tourist and visitor locations, including beaches
- principal boat routes
- other sea-based users, including those considered in different chapters of this report

18.2.25. The applicant referred to the Marine Management Organisation's (MMO) Seascape Character Assessment for the North-West Inshore and Offshore Marine Plan Areas, which is described in terms of land with sea views, and visibility of the sea. Figure 3 of that document shows land with sea views. This broadly indicates that visibility of the sea is generally higher along the coastlines of south-west Cumbria and North Wales, and within the Pennines including the Forest of Bowland extending into West Lancashire. The applicant noted that the large flat areas of the Fylde and West Lancashire coastal plains have much less visibility of the sea. Visibility of the sea is also primarily from land within 10km of the Lancashire/ Merseyside coastline. This forms a band of visibility along the coast edge. It is noted at a broad scale that beyond 60km of the coast there is almost no visibility of the sea and between 50km and 60km visibility of the sea is very limited.

18.2.26. In order to identify viewpoints, the applicant used feedback from consultees, the ZTV which led to the identification of landscape and visual receptors, and further desktop studies through wireline analysis, as well as field survey observations.

18.2.27. Twenty-four viewpoints were selected, which are set out in table 18.11 of chapter 18 of the ES [\[REP3-026\]](#). As well as setting out the locations, the table also sets out the distance to the application site. Photomontages from these viewpoints are also set out and can be found in figures 18.24 to 18.47 [\[APP-109\]](#) to [\[APP-135\]](#) for the 'worst case' [\[REP3-026\]](#), table 18.2] that is 30

WTGs at 310 metres (m) high. Figures 18.48 to 18.71 [APP-136] to [APP-139] provide photomontages from these viewpoints, but using a larger number of WTGs, 35, but with a lower tip height of 290m, which would also be consistent with the terms of the draft Development Consent Order (dDCO) [REP6-002].

- 18.2.28. Moving to night-time effects, the applicant noted that baseline lighting conditions across the SLVIA study area vary considerably and there is no single data source. The applicant set out in figure 18.16 [APP-108], information taken from Campaign to Protect Rural England (now CPRE, the Countryside Charity) light pollution and dark skies data, which itself derives from the National Center for Environmental Information in the United States of America.
- 18.2.29. The applicant showed through figure 18.16 [APP-108] that existing lighting pollution is notably within and around the main settlements and identifies for the majority of the coast and hinterland of the SLVIA study area as falling within the brighter light influenced categories. By contrast, the areas which are 'darker' are within the upland landscapes of North Wales, the LDNP, intertidal areas of Morecambe Bay and the Lune Estuary, the Ribble Valley and the Dee Estuary. Similarly, the seascape of Liverpool Bay and the waters off North Wales include, what the applicant considered to be, *"extensive visible aviation and/ or navigation lighting"* associated with the operational wind farms and gas platforms in the area as well as lit vessels, rigs and cardinal buoys.
- 18.2.30. The applicant considered that higher levels of darkness are experienced from the more remote estuaries and uplands, with a general transition of reducing darkness moving towards the *"swathe of urban development along the coastline"* [REP3-026, paragraph 18.137]. In this paragraph the applicant set out a list of light sources. It then concluded that this lighting *"provides a considerable level of baseline illumination which is apparent when travelling through and around the coastal parts of the study area, from the transition between the urban environment and the more rural areas inland. Lighting within this urbanised coastline is demonstrably intrusive in interrupting the transition between dark landscape and dark skies above in views towards the seascape"* [REP3-026, paragraph 18.138].
- 18.2.31. The applicant considered whether climate change and future trends would affect this but concluded they *"would not change the assessment of impacts presented in this chapter"*.

ASSESSMENT OF EFFECTS

- 18.2.32. Section 18.12 of chapter 18 of the ES [REP3-026] set out an assessment summary. The assessment covered the construction, operation and maintenance, and decommissioning phases, but focussed on the operation and maintenance phase as the applicant considered that this would be when significant effects would most likely occur over the longer term, due to the presence of the offshore infrastructure. This section of the report therefore concentrates on the operational and maintenance effects.

Geographic Assessments

- 18.2.33. The applicant divided the SLVIA study area into four main areas, based on administrative areas, to consider the baseline conditions and effects. These were:
- LDNP
 - North-West England – Cumbria outside the LDNP and Lancashire
 - Merseyside – also including Sefton and Wirral Districts
 - North Wales – within Flintshire (Sir y Fflint), Denbighshire (Sir Ddinbych) and Conwy
- 18.2.34. In each of these areas, the applicant considered the MChAs, National Character Areas and Local Character Areas, went on to look at designated landscapes, historic parks and gardens, country parks, long distance walking routes, and representative viewpoints to consider how the proposed development may affect them.
- 18.2.35. In each case, the applicant looked at the sensitivity to change of the receptor, and the magnitude of change that would occur, leading to an evaluation of significance of effect.
- 18.2.36. Due to the number of receptors, this report does not go through them all individually. It does, however, look at those receptors which are considered to be important or where the applicant considered that the effects of the proposed development would be significant in environmental impact assessment (EIA) terms. As set out below, no interested party challenged the applicant's assessment of the proposed development to a substantive extent, although certain matters were considered further as part of the examination.

Seascape areas

- 18.2.37. The applicant noted that the proposed development would be located primarily in, what are described as, the “*expansive waters*” of the Irish Sea South MChA (MChA 38). The applicant considered that the sensitivity of this seascape to changes associated with the proposed development to be low, although it was considered to have a role in the wider, distant seascape setting of the LDNP and the coastline of North-West England and North Wales. The applicant noted the southern part of the Irish Sea is a busy seascape with multiple offshore activities including commercial fishing, main shipping routes, oil and gas extraction, dredging and extensive operational OWFs extending across the northwest of the marine character area and across Liverpool Bay and the open waters off North Wales.
- 18.2.38. The applicant considered that the proposed development would directly affect MChA 38 and introduce elements that could partially effect its perceived seascape character, increasing the influence of offshore WTGs to the south and forming a new wind farm grouping in this part of the seascape. The applicant noted, however, that existing offshore wind farms already form a key defining characteristic of the marine character area. Consequently, as a result of the addition of elements that are substantially characteristic within

the existing seascape of the southern Irish Sea, the applicant concluded its perceived character would be subject to less change. The applicant therefore considered the magnitude of change to the perceived character of the MChA 38 would be 'medium' and the effect on its perceived character would be 'minor' adverse and thus not significant in EIA terms [[REP3-026](#), paragraph 18.530].

Lake District National Park

- 18.2.39. The applicant considered that the southern fells of the LDNP provide an 'auditorium' for sea views. However, these views are already extensively influenced by operational wind farms in the seascape. The applicant considered that there would be no significant effects on views from the LDNP, its perceived character or special qualities. In other words, there would be 'negligible' effects which in EIA terms would be not significant [[REP3-026](#), paragraph 18.531].
- 18.2.40. The applicant considered that the proposed development would avoid compromising the purposes of the LDNP designation notwithstanding that it may be visible from within the National Park itself in periods of excellent visibility. It also acknowledged that the proposed development may affect certain special qualities but considered it would not undermine the statutory purpose for the National Park and harm would not be caused.

National Landscapes

- 18.2.41. The applicant noted that the Arnside and Silverdale National Landscape would be located some 52.7km from the proposed development. Equally, the Forest of Bowland National Landscape would be approximately 50km away. The applicant assessed the effects of the proposed development on both National Landscapes as not significant due to the very long distances, the limited amount and small scale of the WTGs visible, and the low frequency of visibility at such ranges.
- 18.2.42. As regards National Landscapes in North Wales there are no such landscapes within 48km of the application site and, in agreement with National Resources Wales, the applicant considered that the effects would not be significant [[REP1-026](#), paragraph 18.540].

Barrow-in-Furness, Walney Island nearby coasts

- 18.2.43. When viewed from the coastline of Barrow-in-Furness, Walney Island and the coast and fells of the southern LDNP, the applicant considered that the proposed development would be situated at long distance and behind the baseline influence of operational offshore wind farms. Consequently, the applicant believed the additional influence of the proposed development would be perceived as being subsumed behind existing wind farms, at greater distance and smaller scale further offshore [[REP3-026](#), paragraph 18.533].

Lancashire Coastal Plain

- 18.2.44. In relation to the low-lying urbanised coastland of the Lancashire coastal plain, the applicant noted that the proposed development would be a separate and distinct array within the central part of the southern Irish Sea. This would extend the influence of WTGs to the south of the existing regional windfall grouping that occupies the majority of the northern portion of the seascape.
- 18.2.45. The applicant noted that there is a nearly continuous urban edge of coastal conurbations from Fleetwood through Blackpool to Lytham St Anne's, which form an undesignated, urbanised coastal strip. The applicant considered that the location of the proposed development off the Fylde coast means that it would be exposed and visible from these settlements. Uninterrupted sea views are currently important to the character and sense of space within these settlements and as part of their statuses as popular tourist/ visitor areas along the seafront both in the cited areas and further to the south from the Sefton coast at Southport and Crosby. However, the applicant considered that existing offshore wind farms form prominent visible elements on the existing seascape from the Sefton coast and are part of the baseline for seascape, landscape and visual effects assessments.
- 18.2.46. In the applicant's assessment, the separation of the proposed development from other wind farms when viewed from within the areas of the Fylde and Sefton coasts, including representative viewpoints at Fleetwood, Blackpool, Lytham St Anne's and Southport, meant that the proposed development would result in significant adverse visual effects ('major/ moderate' to 'moderate') [[REP3-026](#), paragraph 18.537].
- 18.2.47. The applicant took the view that sea views are considered a fundamental part of the appeal of the coasts and settlements at Blackpool, Lytham St Anne's and Southport, which are highly valued by high numbers of people and multiple attractions that involve appreciation of the sea view. The applicant considered the magnitude of change would be 'medium' in these views due to the location of the coastline between approximately 29km and 34km from the coast. The applicant accepted that the proposed development would introduce new elements in the relatively simply composed view of this sand/ shingle beach, sky and sea and the WTGs would appear of moderate scale. Therefore, the proposed development would introduce a separate OWF influence on the sea skyline in a new part of the view that is currently free of such an influence. Although there would be localised significant effects on views from this section of the coast, the applicant considered that these visual effects would not translate into significant adverse effects on the perceived character as this is already extensively urbanised and this would not be changed.
- 18.2.48. The applicant noted that no measures would be available to completely mitigate the significant effects. However, the applicant considered measures that have been embedded as part of the proposed development to avoid, minimise or reduce any significant visual effects on seascape, landscape and visual receptors, as far as possible. The applicant considered that the key

measure that minimises potential for significant effects in coastal views is the siting of the proposed development at a long distance offshore.

Merseyside (including the Wirral) and North Wales

- 18.2.49. Turning to the effect of the proposed development on views and the perceived character of the Merseyside area, including the Wirral, and North Wales the applicant considered that these would not be significant ('minor adverse'). This would be due to the long distance of the proposed development from these coastlines and its position which would be either directly behind or in the background context of the extensive operational OWF groupings in Liverpool Bay and the North Wales open waters [REP3-026, paragraph 18.539].

Night-time effects

- 18.2.50. In relation to night-time effects, the applicant undertook its assessment based on the worst-case scenario [REP3-026, table 18.2] which derives from International Civil Aviation Organisation (ICAO)/ Civil Aviation Authority (CAA) regulations and standards including the Air Navigation Order 2016 (see also paragraphs 18.3.43 and 25.4.30 to 25.4.35 of this report). It should be noted that in addition to this human visible lighting, infra-red lighting would also be installed on the WTG hubs to meet Ministry of Defence requirements. Having said that, the applicant based its assessment on the (human) visible spectrum only.
- 18.2.51. The applicant considered that the effect of visible light would be dependent on a range of factors, including the intensity of lights used, the clarity of atmospheric visibility and the degree of negative/ positive vertical angle of view from the lights to the receptor. The angle of the lighting would also be material, since CAA requirements focus the 2,000 candela per square metre (cd/m^2) lighting in the horizontal plane between 3° and 4° above horizontal, meaning that there would be reduced intensity above and below the horizontal plane.
- 18.2.52. The applicant also noted that the maximum intensity of the lighting would likely only to be operated during periods of poor visibility. For visibility of greater than 5km then the lights would be dimmed to 10% of their value, that is 200 cd/m^2 .
- 18.2.53. Under ICAO requirements no lighting needs to be switched on until 'night' has been reached measured at 50 cd/m^2 or darker. While some aviation and marine navigational lights may be seen for a short time during the twilight, the applicant considered that would not allow an ability for an observer to appreciate in any detail, landscape character differences and subtleties, nor would it provide sufficient natural light conditions to undertake a landscape character assessment. The assessment therefore concentrated on the proposed effects of this lighting on views experienced at night.
- 18.2.54. The applicant noted that effects at night from "*pinpoint*" lights are different from moving WTG rotors, and therefore considered different criteria should

be used to assess the effects compared with those used during daylight hours. It concluded that in determining significance, particular attention should be paid to the potential for 'obtrusive light', that is whether the lighting would impede a particular view of the night sky. In other words, whether it would create sky glow, glare or light intrusion in a prominent, incongruous or intrusive way.

- 18.2.55. To assist the consideration a number of night-time visualisations were produced by the applicant. These relate to three viewpoints at:
- viewpoint 8 – Rossall Point, Fleetwood (figures 18.31 h-m [\[APP-117\]](#))
 - viewpoint 9 – Blackpool (near Tower) (figures 18.32 h-m [\[APP-119\]](#))
 - viewpoint 10 – Lytham St Anne's (figures 18.33 h-m [\[APP-121\]](#))
- 18.2.56. In each case the applicant considered that the sensitivity of the viewpoints was 'medium-low'. There is recognition that none of the viewpoints have particular night-time importance (for example, 'dark skies'), nor are they used to encourage visitors with the express intention of viewing the night-sky. Although all three look out to sea the applicant considered there is extensive illumination in existence which reduces the susceptibility of receptors.
- 18.2.57. Due to the distances from the application site, the applicant considered that lights on the WTG nacelles would only be visible in very good and excellent visibility. Other marine navigational lights relatively close to sea level, the applicant maintained, would not be visible courtesy of the earth's curvature.
- 18.2.58. In light of this the applicant concluded that the magnitude of change in night-time views would be low, which combined with the 'medium-low' sensitivity of receptors at these three viewpoints, would lead to not significant, direct, long-term and reversible visual effects [\[REP3-026, paragraph 18.420\]](#).

Summary

- 18.2.59. Table 6 sets out a summary of effects as assessed by the applicant in respect of seascape, landscape and visual receptors where it considered they would be significant in EIA terms. This is taken from table 18.44 of chapter 18 of the ES [\[REP3-026\]](#).

Table 6: Applicant's assessed significant effects on seascape, landscape and visual receptors

Potential impact	Receptor	Sensitivity	Magnitude	Significance of effect
Operational impact on views and perceived character in North-West England	Viewpoint 8: Fleetwood (Rossall Point)	Medium-high	Medium	Significant adverse (Moderate)
	Viewpoint 9: Blackpool near tower	High	Medium	Significant adverse (Major/Moderate)

Potential impact	Receptor	Sensitivity	Magnitude	Significance of effect
	Viewpoint 10: Lytham St Anne's	High	Medium	Significant adverse (Major/Moderate)
	Fleetwood	Medium-high	Medium from seafront, negligible from areas set back therefrom.	Significant adverse (Moderate) from the seafront
	Blackpool	High	Medium from seafront, negligible from areas set back therefrom.	Significant adverse (Major/Moderate) from the seafront
	Lytham St Anne's	High	Medium from seafront, negligible from areas set back therefrom.	Significant adverse (Major/Moderate) from the seafront
	Lancashire Coastal Way	Medium-high	Medium between Fleetwood and Lytham St Anne's. Medium high from low along the southern edges of Morecambe. Negligible from the remaining sections.	Significant adverse (Moderate) between Fleetwood and Lytham St Anne's
	Wyre Way	Medium-high	Medium around Rossall Point (between Rossall School, Rossall Point and the	Significant adverse (moderate) around Rossall School, Rossall Point

Potential impact	Receptor	Sensitivity	Magnitude	Significance of effect
			River Wyre). Negligible from remaining inland sections.	and the River Wyre.
Operational impact on views and perceived character in Merseyside	Viewpoint 11: Southport Pier	High	Medium	Significant adverse (Major/Moderate)

Cumulative effects

- 18.2.60. As with other topic areas the applicant considered the cumulative assessment of the proposed development with the Morecambe and Morgan Transmissions Assets (M&MTA) project (the 'combined assessment') separately from the cumulative assessment with other projects (the 'all projects assessment').
- 18.2.61. At the time of the submission of the application for the proposed development the only areas where the Preliminary Environmental Information Report (PEIR) for the M&MTA project-alone consideration would have EIA significant effects were:
- onshore landscape character: onshore substation – 'negligible' to 'major adverse' effect
 - visual: onshore substation – 'negligible' to 'major adverse' effect
 - visual: onshore cable and landfall – 'negligible' to 'major adverse' effect
- 18.2.62. Originally the applicant considered that there was potential for the offshore substation platforms from the proposed development and an offshore booster station from the M&MTA project to result in cumulative effects. However, as any booster stations were not included in the made application, this would no longer apply.
- 18.2.63. The applicant acknowledged that there was potential for the M&MTA onshore and offshore works to contribute cumulative effects with the proposed development during construction on receptors in the vicinity of the cable landfall point. In light of the transient nature of the construction activities, the applicant considered that this would not elevate the individual assessment for each project. Once constructed, the applicant maintained, the cables would be buried and there would be no continuing effect.
- 18.2.64. Turning to the wider consideration of all the cited projects set out in table 18.39 of chapter 18 of the ES [\[REP3-026\]](#), the applicant considered that the proposed development would contribute to some significant cumulative

visual effects with the Mona Offshore Wind Project and the Morgan Offshore Wind Project (Generating Assets) when experienced from parts the Fylde and Sefton coasts including representative viewpoints at Lytham St Anne's and Blackpool.

- 18.2.65. In view of the distances between the two proposed offshore wind farms, the proposed development and the Fylde coast the applicant considered that, cumulatively, there would be likely a 'medium-low' cumulative magnitude of change. In the applicant's view, on balance, this *"may result in a not significant ('moderate') contribution to the cumulative visual effect on visual receptors/ views from parts of the Sefton and Fylde coast"* [REP3-026, paragraph 18.544]. On balance, the applicant considered these 'moderate' adverse effects would not be significant in EIA terms due to the distances involved. The applicant took the view that the theoretical cumulative effects would rarely be perceived, and the proposed development would result in a relatively limited additional contribution to the cumulative effect, over and above its project-alone effects.

18.3. ISSUES CONSIDERED DURING THE EXAMINATION

THE CASE FOR THE INTERESTED PARTIES

Natural England

- 18.3.1. Natural England (NE) indicated in its RR [RR-061] that it had engaged with the applicant during the pre-examination period. It confirmed it has no major remaining concerns on the impact on SLVIA receptors.

Lancashire County Council

- 18.3.2. In its statement of common ground with the applicant [REP5A-045] Lancashire County Council (LCC) indicates it *"does not wish to raise any concerns in regard to seascape, landscape and visual effects"*.

ISSUES

- 18.3.3. As can be seen from the above, there was very little discussion within the examination as to the effect on seascape, landscape or visual issues.
- 18.3.4. However, we consider that for seascape, landscape and visual effects the main important and relevant issues for reporting are:
- visibility of application site
 - location behind existing wind farms
 - effect on protected landscapes
 - consideration of construction effects
 - consideration of operation and maintenance effects

Visibility of application site

- 18.3.5. In table 18.10 of chapter 18 of the ES [REP3-026] the applicant set out Met Office visibility frequency data over 10 years from the Walney Island Weather Station. There was a discrepancy between these figures and those set out in

table 1.1 of the SLVIA viewpoint assessment in appendix 18.3 [APP-085] which we queried in ExQ1SLV11 [PD-011].

- 18.3.6. In response [REP3-068] the applicant explained that the information in appendix 18.3 was taken directly from the Walney Island Weather Station data, when that in table 18.10 had been grouped into ranges based on Met Office visibility definitions. Appendix 18.3, therefore, provided a *“as precise as is possible measurement”*.

ExA’s considerations on visibility of application site

- 18.3.7. We are satisfied with this answer noting that the precise data uses 1km bands up to 30km visibility, and thereafter 5km bands up to 50km and 10km bands beyond that. As the closest point of the application site to the shore is 29.2km the higher granularity in appendix 18.3 makes no material difference to the assessment results.

Location behind existing wind farms

- 18.3.8. The applicant’s case relies, to some extent, that the proposed development would be seen in the context of the existing OWFs north, south and, as proposed, west of the application site. However, as we pointed out, and is discussed in various chapters of this report, the existing OWFs all have limited lives and thus, at some point in the future, will be removed. This is discussed further in chapter 11 (see paragraphs 11.3.36 and 11.3.37).
- 18.3.9. We were therefore concerned about whether the removal of the existing OWFs would make a material difference to the assessment. Following a discussion at issue specific hearing (ISH) 1 in Action Point 5 [EV3-009] we asked the applicant *“to undertake (and submit a commentary on the results of) a sensitivity analysis on the potential effects of the Proposed Development in the absence of the other existing baseline offshore wind farms that would be decommissioned and therefore removed within the operational life of the Proposed Development”*.
- 18.3.10. The applicant submitted a ‘Seascape, Landscape and Visual Impact and Cultural Heritage Settings Assessment Sensitivity Analysis’ at deadline (D) 1 [REP1-087]. This concluded in the context of a phased decommissioning of operational OWFs, that for the seascape, landscape and visual receptors identified in both the northern and southern parts of the relevant study area, the additional influence would be subsumed behind or seen in the context of existing OWFs, at greater distance and smaller scale until the mid-2040s.
- 18.3.11. The applicant took the view that, post-2040s, there would be no changes to the overall level of assessed significance. Decommissioning activities would also occur thereafter, retaining construction influence.
- 18.3.12. The complete removal of all other existing operational wind farms would occur by 2046 and would, according to the applicant, result only in ‘project-alone’ effects. The applicant therefore concluded that there would be *“no*

additional seascape, landscape and visual effects over and above those assessed” [REP1-087, paragraph 27].

ExA’s considerations on location behind existing wind farms

- 18.3.13. In our view, given the timeframes for the removal of the existing wind farms set out in Table 1 of this report, we are satisfied with the applicant’s response. This is different from whether assessed effects of the proposed development would have an effect which would be significant in EIA terms. This is discussed below.

Effect on protected landscapes

- 18.3.14. In this discussion the term ‘protected landscapes’ refers to both national parks and national landscapes.
- 18.3.15. Clearly, there would be no direct effect on any protected landscape; the only potential change would be on the setting of said landscapes.
- 18.3.16. Under section (s) 245 of the Levelling up and Regeneration Act 2023 (the LURA), changes were made to s11A of the National Parks Act and s85 of the CRoW Act in relation to protected landscapes in England. We note that the LURA made no change to the relevant legislation in respect of protected landscapes in Wales, so the pre-existing legislative requirements remain.
- 18.3.17. Thus, in relation to protected landscapes in England, there is an obligation on any decision maker, to “*seek to further*” the relevant purposes for the landscape. In relation to national parks these are the conservation and enhancement of the natural beauty, wildlife and cultural heritage of the park and promoting opportunities for the understanding and enjoyment of the special qualities of that area by the public. If there is any conflict, greater weight is to be given to the former purpose. In national landscapes the purposes are of conserving and enhancing the natural beauty of the area.
- 18.3.18. In relation to protected landscapes in Wales, in both cases, the obligation is “*to have regard to*” the relevant purposes.
- 18.3.19. During the examination we asked questions of the applicant, NE, because of its responsibilities for protected landscapes under both acts, and local authorities about the change introduced by s245 of the LURA, particularly ExQ1SLV9 and ExQ1SLV10 [PD-011] which related to the Department for the Environment, Food and Rural Affairs (Defra) ‘Guidance for relevant authorities on seeking to further the purposes of Protected Landscapes’.
- 18.3.20. Only the applicant submitted a substantive response, with NE commenting [REP3-092] it “*will not be making any further technical comment on SLVIA*”.
- 18.3.21. The applicant noted in its response [REP3-068] that the LDNP was approximately 43km from the application site, and referred to paragraph 5.10.8 of NPS EN-1 which states the “*Secretary of State should be satisfied that measures which seek to further the purposes of the designation are sufficient, appropriate and proportionate to the type and scale of the*

development". We note that this paragraph refers to the amended legislative obligation.

- 18.3.22. The applicant's view was that the proposed development reasonably conserves the special qualities and features of national landscapes, including the seascape. The applicant notes that its siting is at *"long distance"* and *"largely behind existing wind farms"*. Further, when compared to the pre-application consultation proposals there was a reduction in the eastward spatial extent of the array, and a reduction in the maximum height of the WTGs. The applicant therefore considers that the effects on the spatial qualities of, in particular, the LDNP would be 'minor' at worst.
- 18.3.23. Turning to how the term 'enhancement' should be assessed, the applicant considered the minor effects identified would not result in 'harm' that is required to be offset, and it would not be proportionate to secure for further measures. It also indicates that *"it cannot be the intention of the [s245] duty to outweigh all other considerations, including the considerable policy support for offshore wind, on this single factor. It cannot be the policy objective of the duty to prevent development, however needed or beneficial overall, simply because its main purpose is not to enhance the landscape"* [REP3-068, 1SLV9].
- 18.3.24. The applicant also referred to the Defra guidance to measures being reasonable and proportionate, and 'reasonably practical' and 'operationally feasible'. It considered that it was not reasonably practical for an OWF to enhance the natural beauty of a protected landscape.
- 18.3.25. We also asked questions [PD-011] of the MMO at ExQ1SLV6 as to how its internal procedures would ensure that its consideration of the layout would take account of seascape, landscape and visual effects from coastal regions (including inland locations with a view of the application site) and asked the applicant for comment. The applicant [REP3-068] indicated it had no comments although it noted that local authorities within the ZTV had been consulted prior to the application being made. The MMO did not answer the question asked. However, it noted that it would set up a consultation with NE, Trinity House and the Maritime and Coastguard Agency (MCA) for the detailed array layout. The MMO also indicated that it would be open to other parties being included.
- 18.3.26. On 25 March 2025, we published our proposed changes to the dDCO [PD-019]. We recommended that those bodies to be subject to consultation from the MMO under condition 9(1) of the draft Deemed Marine Licence (dDML) be extended to also include the Lake District National Park Authority, the Arnside and Silverdale National Landscape Partnership and the Forest of Bowland National Landscape Joint Advisory Committee as well as Trinity House and MCA. The reason for this was *"[t]o ensure the land based effects of the proposed development are fully considered in relation to protected landscapes, particularly in light of section 245 of the Levelling Up and Regeneration Act, 2023"*.

- 18.3.27. On 27 March 2025 the High Court handed down its decision in the case of *New Forest National Park Authority v Secretary of State for Housing, Communities and Local Government and another* [2025] EWHC 726 (Admin) (the NFNPA decision) which related to the legislative change.
- 18.3.28. On 8 April 2025, the applicant submitted the D5a version of the dDCO [\[REP5a-002\]](#) which incorporated our proposed change into the dDCO and this remains in the final dDCO [\[REP6-002\]](#).
- 18.3.29. In our R17 letter of 10 April 2025 we asked the applicant and NE and for their comments on the NFNPA decision. NE responded [\[REP6-050\]](#) that it “*does not have any comments to make in light of this judgement that we consider pertinent to this application*”. The applicant [\[REP6-041\]](#) considered “*the judgment supports the Applicant’s position as set out in its responses to ExQ1 ([REP3-068](#) at 1SLV9) and ExQ2 ([REP5-070](#) at 2SLV1)*”.

ExA’s considerations on effect on protected landscapes

- 18.3.30. As can be seen from Table 5: Visibility from Walney Island Met Office Station above, due to the 30km distance from the shore, the application site can only be seen about 117 days per year; this equates to around one-third of the year. The protected landscapes are all notably further than this, meaning that there would be intervisibility of less than this; at 40km it would be approximately 64 days per year (around one-sixth), and 50km around 35 days, or around one-twelfth.
- 18.3.31. For a viewer on the sea, it would be possible to see both the protected landscape and application site with less visibility. Any viewer would need at least 20km visibility, which occurs on around 200 days a year, and be located equidistant between the application site and the protected landscape to just see both the protected landscape and the proposed development. However, this would not be in the same view and the number of viewers would be extremely limited. We consider this to be of such low likelihood that the effects would be ‘negligible’.
- 18.3.32. It may be a trite comment, but when intervisibility is not available, then there would be no change to the current situation. Any assessment, therefore, needs to be undertaken with this in mind.
- 18.3.33. In our view, provided the layout of the WTGs was agreed on the basis not only for marine considerations but also in relation to the effect on these protected landscapes the special qualities of the LDNP and the National Landscapes would be preserved.
- 18.3.34. Notwithstanding its lack of positive engagement during the examination in relation to landscape matters, NE has a statutory general purpose under s2(1) of the Natural Environment and Rural Communities Act 2006 to conserve and enhance the landscape. It also must, under s4(1), at the request of a public authority, give advice to that authority on any matters relating to NE’s general purpose.

- 18.3.35. Under condition 9(1) of the DML within schedule 6 of the dDCO [\[REP6-002\]](#) NE would be consulted by the MMO, as the relevant nature conservation body as to the, among other matters, layout of the proposed development. NE, therefore, would need to consider the effects of the layout of the WTGs on protected landscapes at this time.
- 18.3.36. In light of the NFNPA decision as to how the new duty should be interpreted, which post-dated our proposed changes to the dDCO, we consider that the relevant duties in relation to both English and Welsh protected landscapes would be complied with through the statutory obligations on NE. In light of the NFNPA decision, therefore, we consider there is no need to consult the Lake District National Park Authority, the Arnside and Silverdale National Landscape Partnership and the Forest of Bowland National Landscape Joint Advisory Committee on the layout and the relevant changes introduced can be removed. We are recommending a series of changes to the dDCO [\[REP6-002\]](#) to this effect.

Construction effects

- 18.3.37. The construction effects of the proposed development would be, as the applicant indicates, temporary. The works would take around 2.5 years, and would involve various vessels, including jack-up vessels including cranes. However, the works would be taking place just over 29km from the nearest point of land and would be partially hidden from view by the curvature of the Earth.

ExA's consideration of construction effects

- 18.3.38. In our view, construction effects would soon be subsumed by the effects of the resultant development and therefore this is a neutral consideration in relation to this overall matter.

Operational and maintenance effects

- 18.3.39. As the applicant noted the proposed development would fall within MChA 34 and MChA 38, the latter of which is already influenced by other OWFs in the northern part of the area. However, the area where the proposed development would take place is separated from the existing OWFs and therefore would appear as a discrete element. The proposed development would be a new feature in the latter area. Consideration, therefore, needs to be undertaken in this context.

ExA's consideration on operation and maintenance effects

- 18.3.40. Paragraph 2.8.209 of NPS EN-3 sets out four principal considerations for seascape on the likely effect of OWFs on the coast.
- 18.3.41. Firstly, to limit the visual perception from the coast under poor, good and best lighting conditions. We have used the Met Office's visibility definitions which are utilised in Table 5.

- 18.3.42. In poor visibility the application site could not be seen from the coast. For good conditions, that is up to 20km distance, again the application could not be seen from the coast. For best, that is excellent, conditions the site could be seen. However, due to the curvature of the Earth, only the upper extent of the array would be visible. The OWFs would be painted so that only the lowest parts of the vertical strut would be coloured in a bright colour where the curvature of the earth would minimise effects. We are therefore satisfied that the applicant has done everything it could to reduce the effect from the coast.
- 18.3.43. Secondly, the effect of navigation and hazard perception lighting on dark night skies. Requirement 3 of the dDCO [[REP6-002](#)] requires the exhibition of lighting as required by the Air Navigation Order 2016 (see discussion in paragraphs 25.4.30 to 25.4.35 of this report), or as determined necessary for aviation safety by the Defence Infrastructure Organisation (DIO) and Civil Aviation Authority (CAA), which are to be displayed for the operational lifetime of the proposed development. As noted in paragraph 18.2.51, this would only be in a very narrow arc of view. However, due to the distances involved to receptors, this would enable them to be seen from the coast.
- 18.3.44. For those times, which would be relatively limited due to the distance of the application site from the receptors, we are satisfied that, given the regulatory constraints, the proposed development has been designed to minimise the effects as far as possible.
- 18.3.45. Thirdly, the effects on individual and visual characteristics of the coast and the special qualities of designated landscapes, which limits the coast's capacity to absorb a development. Here we are satisfied that due to the distances, that the applicant has minimised effects as far as possible.
- 18.3.46. Finally, the effect on how people perceive and interact with the coast. For that part of the Lancashire coast between Fleetwood and Lytham St Anne's we consider that the applicant has underestimated the effects. This section of coast is shown in Figure 16 and Figure 17 which show the relationship to this section to the application site and identifies the settlements.

Figure 16: Application site in relation to coast (extract taken from figure 1.1 of [APP-105])

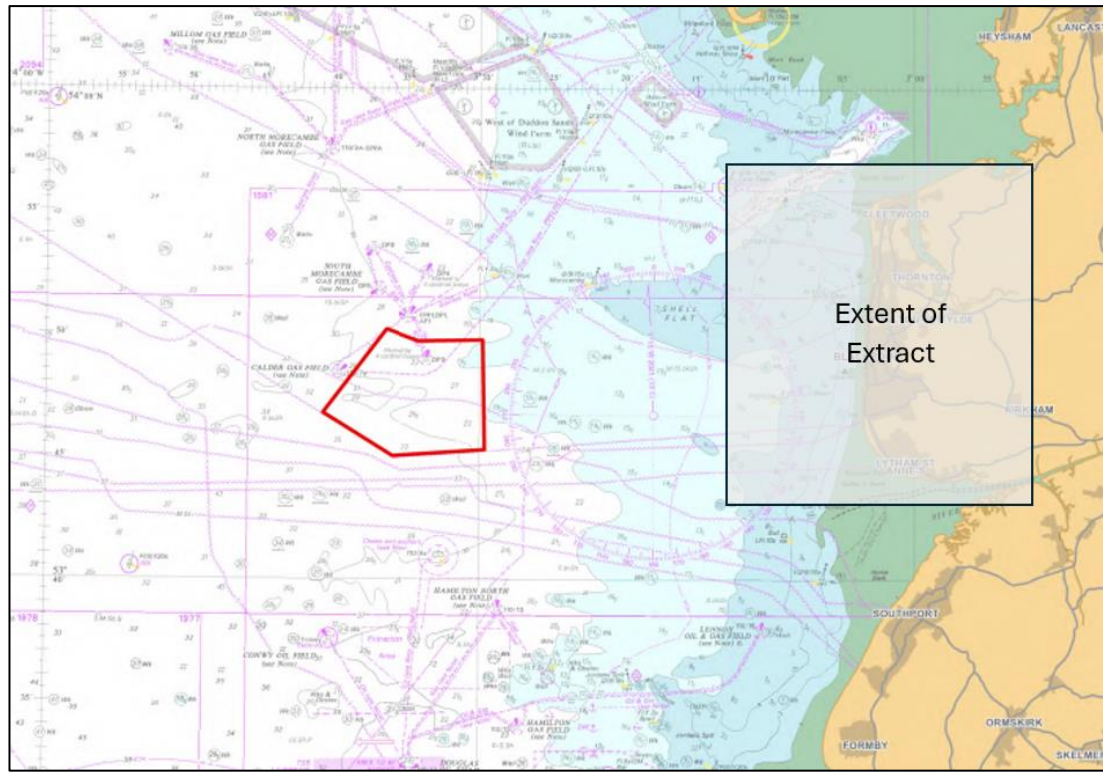


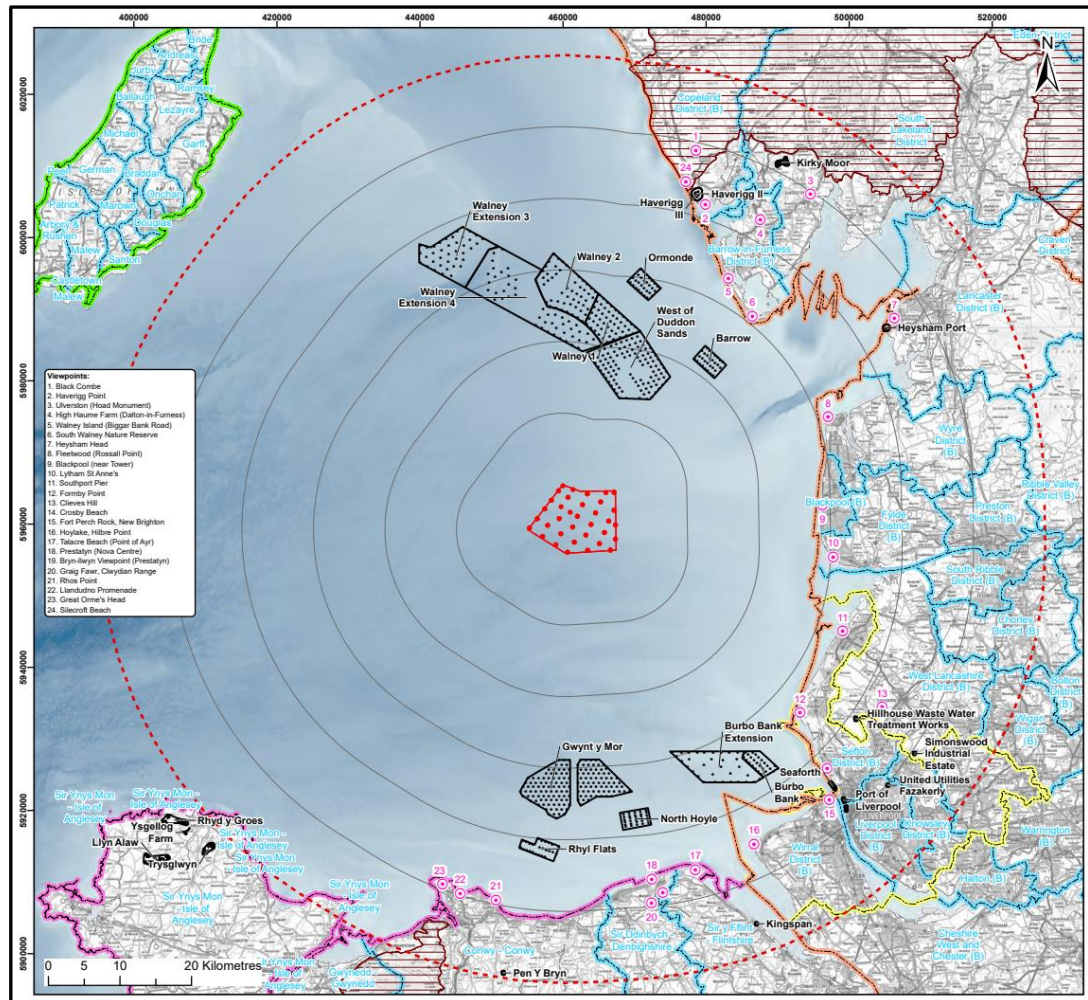
Figure 17: Coast from Fleetwood to Lytham St Anne's (from Ordnance Survey under the Public Sector Geospatial Agreement)



- 18.3.47. Our consideration turns on a single point relating to how the maritime environment is currently perceived from the coast. At present there is a definite 'gap' between the existing arrays to the north (from Barrow OWF to Walney Extension OWF) and those to the south (Burbo Bank OWF to Gwynt y Môr OWF) (see Figure 18). This means for those on the coast between Fleetwood and Lytham St Anne's, which falls within MChA 34, the views are not interrupted by OWFs to any significant degree. The proposed development would introduce a new feature. While there is some existing infrastructure, for example the existing oil and gas facilities, these are more

sporadic and less tall having a far lesser effect than an OWF would have and, in our view, do not affect how the existing seascape is perceived.

Figure 18: Location of proposed development in relation to existing OWFs (extract from figure 18.3 of [APP-106])



Fleetwood

18.3.48. From Fleetwood looking out to sea the view is currently unrestricted from due west to south-west, which is approximately 45°. See [APP-116] for the relevant figures from viewpoint 8 (Rossall Point). The proposed development would occupy a field of view of between 10° to 20° (see figure 18.9 [REP3-038]). While the proposed development would be experienced in the context of the OWFs to the north it would fill around half of the currently uninterrupted field of view with a gap between the existing OWFs and the proposed development.

18.3.49. The applicant assessed the sensitivity of the receptor as 'medium-high' with a 'medium' magnitude of change, leading [REP3-038, table 18.8] to a 'moderate adverse (significant or not significant)' effect, and thus leaving it to judgement.

- 18.3.50. We agree with the applicant as to the sensitivity of the receptor. However, because the proposed development would introduce elements which are somewhat uncharacteristic of the view (see definition of ‘medium-high’ in table 18.7 of chapter 18 of the ES [\[REP3-038\]](#)), we consider that the magnitude of change would be ‘medium-high’. This results in a ‘major/moderate’ effect which is significant in EIA terms.

Blackpool

- 18.3.51. At Blackpool (viewpoint 9, see [\[APP-118\]](#)), within MChA 34, the field of view is currently unrestricted from west-northwest to southwest, or around 67.5°. The proposed development would fill between 10° to 20° of this (see figure 18.9 [\[REP3-038\]](#)). This would be separated from any other infrastructure and would thus introduce features which are not present in the main view out to sea from the promenade. This, in our view, would be uncharacteristic of the current situation (see definition of ‘high’ magnitude of change in table 18.7 of chapter 18 of the ES [\[REP3-038\]](#)).
- 18.3.52. We agree with the applicant that the sensitivity of the receptor is ‘high’, but rather than a ‘medium’ magnitude of change, as the view out from the promenade and beach is currently empty of OWFs we consider that this would result in a ‘high’ magnitude of change.

- 18.3.53. Following table 18.8 in chapter 18 of the ES [\[REP3-038\]](#) rather than a ‘major/moderate’ overall effect, which is significant, we consider this would be a ‘major’ adverse effect, which is also significant in EIA terms.

Lytham St Anne’s

- 18.3.54. Again, within MChA 38 at Lytham St Anne’s (viewpoint 10, see [\[APP-120\]](#)), the field of view is currently unrestricted from northwest to just south of southwest, that is for around 80°. The proposed development would occupy between 10° to 20° (see figure 18.9 [\[REP3-038\]](#)) of that and would be separated from any other existing infrastructure.
- 18.3.55. For the same reasons as at Blackpool, we consider that the applicant has underestimated the effects. We conclude, therefore, that the proposed development would result in a ‘major’ effect, which is significant in EIA terms, rather than a ‘major/moderate’ adverse effect as assessed by the applicant.

Other visual receptors

- 18.3.56. For the remaining visual receptors, that is to the north of Fleetwood and to the south of Lytham St Anne’s, which includes the Merseyside region and the whole of the north Wales area, we concur with the applicant that there would be little harm. This is due to the distance from the receptors, and thus the frequency of view, and the existing environment which includes many OWFs. If and when these are removed, we consider that this would not materially affect the overall consideration due to the distance of the proposed development from the coast, and that the proposed development would be read in the same views as any OWFs which are currently under consideration. Given the number of leasing rounds in the Irish Sea, and the

number of proposed projects , we consider it unrealistic to think that the proposed development would be the only OWF in the eastern Irish Sea.

MChA34

- 18.3.57. All of the receptors where we have found greater effects than those assessed by the applicant lie in MChA 34 'Blackpool Coastal Waters and Ribble Estuary'. We have therefore re-looked at this area to see whether the applicant's assessment remains robust.
- 18.3.58. Table 18.44 of chapter 18 of the ES [REP3-034] sets out a summary of the potential effects on MChA 34 as assessed by the applicant. The applicant considered that the sensitivity of the receptor was 'medium, with a 'medium' magnitude leading to a 'moderate' adverse effect which would not be significant in EIA terms. The relevant analysis being in table 18.36.
- 18.3.59. As with the Fleetwood, Blackpool and Lytham St Anne's receptors, we agree with the applicant as to the sensitivity of the MChA 34 receptor to change, that is 'medium'.
- 18.3.60. In our assessment consideration needs to be of the MChA as a whole. While some of the proposed development lies within MChA 34 (see figure 18.9 [REP3-038]) with direct effects, the majority would be outside. We agree with the applicant that the proposed development would introduce development *"in a new part of the seascape"*, but other parts of the MChA *"are visually more contained and less exposed"*. Given the small part of the MChA which would be directly affected by the proposed development we consider that it would *"partially affect the seascape character"*. In line with the definitions set out in table 18.7 of chapter 18 of the ES [REP3-034], we consider that the level of effect would be 'medium'.
- 18.3.61. Following table 18.8 of chapter 18 of the ES [REP1-038] this leads to a 'moderate (significant or not significant)' overall assessment of significance. Given how frequently the proposed development would be visible (see Table 5: Visibility from Walney Island Met Office Station) and that the assessment should be taken over the whole of the MChA we conclude, on balance, that these effects would be not significant.

ExA's consideration on cumulative effects

- 18.3.62. In relation to the M&MTA project, we agree with the applicant that any construction activities taking place contemporaneously are likely to be temporary and short-lived so that they would not be significant.
- 18.3.63. For operational effects, due to the additional distances and the limits to visibility of the proposed development from vantage points, we consider that the cumulative projects identified would not result in any additional effects beyond those we have assessed above on a project-alone basis.

18.4. CONCLUSIONS

- 18.4.1. Our overall conclusion, therefore, is that the applicant has carried out a seascape, landscape and visual assessment, including cumulative effects and has referred to landscape and seascape character assessments and considered the effects in relation to the natural beauty and special qualities of protected landscapes, in line with paragraphs 5.10.16, 5.10.17, 5.10.18 and 5.20.20 of NPS EN-1 and paragraph 2.11.5 of NPS EN-5.
- 18.4.2. The transmission elements of the proposed development, that is the OSP(s), would be comparatively low when compared to the WTGs meaning that they would be mostly obscured by the curvature of the Earth. Any remaining effects would be considered as part of the consideration of the final layout. The proposed development would therefore comply with paragraph 2.11.3 of NPS EN-5 which requires options for mitigation to be considered and evaluated appropriately.
- 18.4.3. In our view, the proposed development would have:
- a ‘major’ harmful effect on visual receptors along the Lancashire coast between Fleetwood and Lytham St Anne’s
 - a ‘medium’, although not significant, harmful effect on the seascape of MChA 34
 - ‘little’ harmful effect on other visual receptors
 - subject to an appropriate layout, a neutral effect on landscape receptors, including protected landscapes
- 18.4.4. Paragraph 2.8.352 of NPS EN-3 notes that where adverse effects are anticipated during the operational phase, the SoS should consider the extent that any effects are temporary or reversible. In our view, given the length of proposed operation of the proposed development such effects should be considered to be long-term, so this does not reduce the degree of harm.
- 18.4.5. Because of the importance of protected landscapes, we have considered them separately. In our view for the reasons set out, we consider that the effect of the proposed development on these receptors would be neutral, and this would also apply to landscape receptors more generally.
- 18.4.6. While for most visual receptors there would be little harmful effects, because of the major harmful effect on those between Fleetwood and Lytham St Anne’s we consider, taken as a whole, the proposed development would have a moderate negative weight on seascape and visual receptors to be taken forward in the planning balance.

19. SHIPPING AND NAVIGATION

19.1. INTRODUCTION

19.1.1. This chapter considers the effect of the proposed development on shipping and navigation. Given the proximity to naval facilities, this also includes a consideration of shipping, including submarine activity, in relation to national defence. The effect on fishing is predominantly considered in chapter 8.

19.1.2. In our consideration of shipping and navigation, we have had regard to:

- the requirements of the Overarching National Policy Statement for Energy EN-1 (NPS EN-1), in particular section 5.9, and the National Policy Statement for Renewable Energy Infrastructure (EN-3) NPS EN-3, section 2.8
- the relevant policies of the UK Marine Plan and the North West Inshore and North West Offshore Marine Plan (NWMP), particularly policy NW-PS-2 and NW-PS-3
- any matters prescribed in relation to the development, including:
 - the United Nations Convention on the Law of the Sea (UNCLOS)
 - Electricity Act 1989
- any other important and relevant matters, including:
 - Marine Guidance Note (MGN) 654 (Merchant and Fishing) Safety of Navigation: Offshore Renewable Energy Installations (OREI) – Guidance on United Kingdom Navigational Practice, Safety and Emergency Response
 - MGN372 (Merchant and Fishing) OREIs: Guidance to Mariners Operating in the Vicinity of UK OREIs

19.2. THE APPLICATION

19.2.1. The applicant's case in relation to shipping and navigation was set out in chapter 14 of the environmental statement (ES) [\[REP3-020\]](#), which was accompanied by two appendices, a 'Navigational Risk Assessment' (appendix 14.1) [\[REP3-028\]](#) and a 'Cumulative Regional Navigation Risk Assessment' (CRNRA) (appendix 14.2) [\[APP-074\]](#) together with two figures set out in [\[REP3-020\]](#). A 'Radar Early Warning System Technical Report' [\[REP3-034\]](#) was also provided as an appendix 17.2 to chapter 17 of the ES relation to infrastructure and other users.

19.2.2. The assessment was informed by, and took into account, the findings and conclusions of other relevant topics and chapters of the ES. Those chapters included:

- Chapter 7 'Marine Geology, Oceanography and Physical Processes' [\[REP5a-015\]](#).
- Chapter 13 'Commercial Fisheries' [\[REP3-018\]](#).
- Chapter 16 'Civil and Military Aviation and Radar' [\[REP3-024\]](#).
- Chapter 17 'Infrastructure and Other Users' [\[REP1-038\]](#).

- Chapter 19 'Human Health' [REP6-011].
- Chapter 20 'Socio-economics, Tourism and Recreation' [APP-057].

19.2.3. The applicant's assessment was based on what it assumed to be the 'worst-case' scenario as set out in table 14.2 of chapter 14 of the ES [REP3-020].

BASELINE

19.2.4. The applicant utilised as a study area the application site together with an area 10 nautical miles (nm) around it [REP3-020, figure 14.1]. The CRNRA for consideration of effects with other plans and projects extended this to a region of the eastern Irish Sea bounded by the Isle of Man to the northwest, and the Welsh and English coasts to the south and east respectively [APP-074, figure 3].

The applicant noted there are no International Maritime Organisation (IMO) routing/ reporting measures or recommended channels within the study area and therefore this was not assessed further for the project- alone. The Liverpool Bay Traffic Separation Scheme (TSS), the closest routing measure, is located approximately 12.4nm south of the application site. The area surrounding the Douglas oilfield infrastructure, some 21.7 kilometres (km) to 23.1km from the application site, is charted as an 'Area to be Avoided' only to be entered by authorised vessels accessing the Douglas Oil Field Oil and gas infrastructure within 50km of the application site is shown in Figure 17.3 [APP-105].

19.2.5. The applicant reports there are various aids to navigation within the study area. The nearest being the Calder 110/70a platform 0.9km to the west of the application site. There are also aids to navigation marking the West of Duddon Sands Offshore Wind Farm (OWF) and the Walney OWF some 8nm and 10nm to the north of the study area respectively. Both have cardinal marks indicating safe water to the south and east of the West of Duddon Sands OWF and mark significant peripheral structures for both. The Morecambe West cardinal mark is located 5nm northeast of the application site marking the western extent of Shell Flat on the southern approaches to Lune Deep. A single buoy mooring for vessels transferring oil from the Douglas oil field is located 4nm south of the application side which is used by commercial vehicles.

19.2.6. The applicant noted there are no pilot boarding stations within the study area, with the nearest being at Barrow some 13nm northeast of the application site. There are no ports within the study area, with the nearest being the Port of Barrow some 19nm northeast. Table 14.13 in Chapter 14 of the ES [REP3-020] set out details of ports in the vicinity in England, Wales and the Isle of Man along with their main business.

19.2.7. The applicant described other infrastructure in the area as including oil and gas infrastructure and various subsea cables to and from the Isle of Man, the Republic of Ireland and North America. These either traverse or run immediately adjacent to the application site. There are further telecommunications cables to the south of the application site, and one

power cable between Birkenhead and Ardneil Bay, West Kilbride, Scotland passing through the southwest of the study area.

- 19.2.8. According to the applicant there are no charted anchorages within the study area, although Douglas Bay is used as an anchorage for vessels using the Port of Douglas and cruise vessels. The applicant reported two charted anchorages within the Port of Liverpool area. One south of the approaches to Liverpool between the Burbo Bank extension and Gwynt y Môr OWFs. The other is located north of the approaches to the River Mersey.
- 19.2.9. In order to ascertain the level of traffic in the study area, in line with MGN654 requirements, the applicant undertook surveys in February 2022, late July/ early August 2022 and late November/ early December 2023 each for 14 days. It also looked at a number of different data sources as set out in table 14.7 of chapter 14 of the ES [\[REP3-020\]](#).
- 19.2.10. The applicant reported that between 63 and 191 (2019 data), and 52 and 129 (2022 data) transits per month intersected the application site. Between 959 and 1,657 (2019 data), and 508 and 1,176 (2022 data) transits per month intersected the study area. Traffic peaks were noted in summer, owing primarily to increased ferry operations, but increases in recreational and fishing vessels were also noted.
- 19.2.11. Tug and service vessels associated with oil and gas infrastructure and passenger vessels associated with ferry routes made up the majority of the transits. The main categories of vessels transiting the study area were dry cargo vessels, tankers and ferries. There were also some cruise ships and some little recreational activities.
- 19.2.12. For dry cargo vessels, one route between Heysham and Barrow, and two routes between Liverpool and Ireland/ Scotland intersect the application site. However, with less than one vessel per day transiting, the applicant considered this to be of low frequency.
- 19.2.13. The applicant maintained that few tankers transit through the application site. In 2019 there were nine movements through the application site in an east to west direction between Barrow and the Off Skerries TSS. In 2022 tanker movements were concentrated to the west of the application site, but on 7 occasions crossed the southwestern corner. There is a north/ south route between Larne/ Belfast and Liverpool, operated by a single vessel which transits 5.2nm west of the application site. In 2019 there were 23 transits, and this increased to 64 in 2022. This vessel is regularly used for bunkering other vessels in port.
- 19.2.14. The ferry routes are set out in table 14.17 of chapter 14 of the ES [\[REP3-020\]](#). These are summarised in Table 7.

Table 7: Ferry routes and crossing within study area by operator

Operator	Passage	Approx annual vessel count (2019)	Approx annual vessel count (2022)
Stena Line (Stena)	Liverpool - Belfast (east of Isle of Man – west of Calder)	200	194
	Liverpool - Belfast (east of Isle of Man – east of Calder)	153	196
	Liverpool - Belfast (west of Isle of Man)	1,442	1,098
Isle of Man Steam Packet Company (IoMSPC)	Liverpool - Douglas	674	593
	Heysham - Douglas	1,374	1,451
Seatruck	Heysham - Warrenpoint	967	1,099
	Heysham - Dublin	523	606

- 19.2.15. The applicant noted that the Liverpool - Belfast (east of Isle of Man – west of Calder) route passes outside (southwest) of the wind farm site. On this “*sub-route*” one transit and three transits of vessels intersected the application site in the 2019 and 2022 surveys respectively. For the Liverpool - Douglas route the passage plan is outside (southwest) of the application site. However, 14 and 8 vessels on this route passed through the application site in the 2019 and 2022 surveys respectively.
- 19.2.16. During periods of adverse sea conditions, the applicant noted that alternative routing is used to reduce risk of damage and improve passenger comfort. Ferries typically take a more southwesterly transit during prevailing southwesterly adverse weather. In adverse weather Stena and the IoMSPC routes tend to transit to the southwest of the study area, towards the prevailing conditions. The applicant noted that in 2022 on three occasions Seatruck ferries passed through the application site as a result of particular metocean conditions. The applicant believed its normal adverse weather routes do not pass through the application site.
- 19.2.17. The applicant reported that there were few cruise ships in the study area, approximately 18 in 2019 and 6 in 2022, but those that do, visit Liverpool and Ireland or Douglas. No cruise ships transited the application site.
- 19.2.18. The applicant reported that there was little recreational activity in the application site area, and that which existed greatest to the southeast of the study area. No tracks were recorded in the 2022/ 2023 winter survey, and 12 were recorded during the summer survey, 6 of which intersected the application site. The applicant indicated that most recreational vessels

remain predominantly along the coast, with some offshore cruising between Liverpool and the Isle of Man, Heysham/ Barrow and Conway Bay.

- 19.2.19. Fishing activity occurs, according to the applicant, across the study area and the effects of the proposed development are discussed more fully in chapter 8. The applicant assumed that where high concentrations of vessels appeared in close proximity to oil and gas installations they were likely to be associated with those operations rather than for fishing. Fishing vessel activity was concentrated to the south and southwest of the study area during winter and in the northern half of the study area during summer. The south and southwest sections having recorded 10,000 hours of fishing time in 2020.
- 19.2.20. The applicant noted that tug and service vessels have been reported within the study area. They often transited between Barrow and Off Skerries TSS and occasionally transited through the application site accounting for 22 transits per year.
- 19.2.21. Oil and gas service vessels mostly operate out of Heysham or Liverpool and those associated with supply ships and standby safety vehicle vessels have a high intensity within the application site and study area. In 2019 approximately 1.5 vessels per day passed through the application site and 11.5 vessels per day operated within the study area. Activity in 2022 was similar although slightly fewer.
- 19.2.22. In accordance with MGN 654 90th percentile corridor principles, the applicant has established where there are commercial shipping routes in proximity to the proposed development. There are 13 commercial vessel 90th percentile routes with less than one vessel movement per day that intersect the study area. Of the 13 routes, six intersect the application site. All routes with more than one vessel movement per day operate outside of the study area and are on transit to and from the port of Liverpool.
- 19.2.23. The applicant reported that the highest intensity of anchoring takes place outside the study area in the vicinity of the Isle of Anglesey. No anchoring activity has been reported in the application site.
- 19.2.24. According to the applicant 4 navigationally significant incidents were recorded between 1992 and 2022. Two related to mechanical failure (one fishing and one commercial craft), one personal injury to a passenger relating to the roll of a vessel, and one contact incident north of the application site due to the loss of control of a service ship and contact with a rig in the South Morecambe gas field.

FUTURE CASE SCENARIO

- 19.2.25. In order to ascertain a 'no scheme' baseline, the applicant investigated potential trends based on Department for Transport data. This is set out within the NRA in Appendix 14.1 [[REP3-028](#)]. The applicant indicated that port traffic is forecast to be flat in the shorter term but growing thereafter with tonnage 39% higher in 2050 than 2016. For the purposes of the assessment,

the applicant considered that there would be a 15% increase in national freight tonnage by 2035. This trend would be made up by a reduction in liquid and dry bulk traffic (principally crude oil and coal) and an increase in biomass and container traffic both lift-on/ lift-off and roll-on/ roll-off.

- 19.2.26. For ferries, the applicant reported that all three operators have recently changed, are in the process of changing, or will need to replace, vessels in the next decade. However, as prediction of traffic on these routes is uncertain, the applicant assumed that vessel routes in 2035 would be similar to those surveyed, but with a likely increase in frequency of services.
- 19.2.27. The applicant did not anticipate any change in the number of recreational users using either the study area or the application site.
- 19.2.28. Considering vessels associated with the petro-carbon industries, the applicant noted that the existing Irish Sea oil and gas operations are reaching the end of their lives and approaching decommissioning.
- 19.2.29. The South Morecambe gas field includes platforms DP6, DP8 and the Central Processing Complex (CPC) and associated cable, pipeline and umbilical infrastructure. Platform DP3, within the application site, and DP4 were decommissioned and removed in 2023 eliminating these obstructions to navigation. The CPC is located 0.9nm north of the application site is a hub complex made up of three platforms on jacket substructures. These are all operated by Spirit Energy Production UK Limited (Spirit). The Calder Gas field includes the Calder platform which is a small production facility with a single topside located 0.5nm to the west of the application site boundary. This is operated by Spirit, but owned by Chrysaor Resources (Irish Sea) Limited, a subsidiary of Harbour Energy PLC (Harbour). Harbour will be responsible for its decommissioning in due course.
- 19.2.30. In order to comply with legislation, the applicant notes that a 500 metre (m) exclusion zone is necessary around all oil and gas platforms. Details of the relevant marine buffer zones around the CPC and Calder are set out in the protective provisions (PP) in favour of Harbour and Spirit set out in schedule 3 of the draft development consent order (dDCO) [[REP6-002](#)].
- 19.2.31. The applicant reported that International Guidance for Offshore Marine Operations (IGOMO) states that vessels should plan for vessel passing distances of at least 1nm (1.8 kilometres (km)) from each platform and operations which might be in progress in its immediate vicinity. It also notes that future decommissioning of platforms would require a jack-up vessel, estimated to be on site for over six months per platform. This would be supported by service vessels. Currently within the South Morecambe gas field, a platform supply vessel operates 3 days per week and an Emergency Rescue and Recovery Vessel (ERRV) operates 365 days per year.
- 19.2.32. The applicant reported that The Crown Estate (TCE) awarded an Agreement for Lease (AfL) to the Gateway Gas Storage Facilities in 2018, but no development activities have taken place to date. The storage facility would be located 4km to the northeast of the application site with no direct overlap.

Similarly, 10km to the south and again with no overlap, ENI UK Limited has been awarded a carbon dioxide (CO₂) appraisal and storage licence covering the Liverpool Bay area. In 2023, the North Sea Transition Authority granted rights for the exploration and appraisal of potential CO₂ storage sites which overlap the application site. The applicant advised that detailed plans for this project are not currently available.

ASSESSMENT OF EFFECTS

- 19.2.33. This section will deal with project-alone effects and then move on to set out cumulative effects with other plans and projects.

Construction effects

Ferries

- 19.2.34. The applicant noted that existing ferry traffic could be displaced due to buoyed construction areas, active safety zones, vessels involved in construction and constructed but not yet operational structures. In the worst-case, the applicant noted that obstruction and re-routing has the potential to increase costs or make schedules unviable. It is noted that due to rest requirements for maritime staff increased passages could affect compliance. Changes to routing may increase the risk of collision (2 moving vessels hitting each other) or allision (a moving vessel hitting a stationary object).
- 19.2.35. In order to avoid construction activities, the applicant noted that there would be an increase of approximately 1.6nm (said to be 5.1 minutes or 1% of the journey time) on the journey between Liverpool and Belfast east of the Isle of Man (east of Calder) by Stena Line. This route is used approximately every other day. The applicant considered that this would not result in a significantly adverse impact on operations, although the applicant acknowledged there would be some associated operating costs.
- 19.2.36. Currently around 12.8% of journeys on the Liverpool to Douglas route (IoMSPC) navigate to the north of the Hamilton Gas Field structure (110/13), and the proposed development would require vessels to utilise the standard route which is some 2.3nm clear of the southwestern corner of the application site.
- 19.2.37. During adverse weather, the applicant noted that ferry operators tend to transit to the southwest of the study area towards the prevailing conditions. Even in adverse weather, occasionally, the applicant noted that Liverpool to Belfast ferries (Stena) use the 'normal' route. Consequently, there would be the increased journey length/ time identified above. No other adverse weather routes would be affected.
- 19.2.38. In light of all the above, the applicant considered that construction of the proposed development would have a 'minor adverse' effect on ferries which would not be significant in Environmental Impact Assessment (EIA) terms [REP3-020, paragraph 14.148]. No additional mitigation beyond that embedded within the design was considered necessary, meaning that the

residual effect was assessed as ‘minor adverse’ [[REP3-020](#), paragraph 14.150].

Commercial vessels

- 19.2.39. For commercial vessel routings there could be displacement for the same reasons as for ferries. Although there would be a low frequency of use, less than one every 9 days, for the 3 commercial routes identified there could be increases in journey distances of up to 2.4nm. The applicant reported that analysis of adverse weather routing did not show any changes. In light of this, the applicant maintained that the residual effect of the proposed development on commercial vessel routing would be ‘minor adverse’ and not significant in EIA terms [[REP3-020](#), paragraph 14.162]. No additional mitigation beyond that embedded within the design was considered necessary, meaning that the residual effect was assessed as ‘minor adverse’ [[REP3-020](#), paragraph 14.164].

Allisions

- 19.2.40. According to the applicant, the risk of allision would increase, most likely from human error or mechanical failure. The risk of allision would increase as the proposed development was built out, so the highest risk would be for the operational and maintenance phase.
- 19.2.41. Modelling undertaken by the applicant showed, what it described, as a ‘low’ frequency of events. That is, 1 in 9,549 years for commercial vessels and 1 in 2,118 years for ferries. Due to the construction safety zones of up to 500m from the outer edge of structures and 50m around partially completed wind turbine generators (WTG) and offshore substation platforms (OSP) all vessels would avoid these areas through standard practice. In light of this the applicant estimated the frequency of occurrence of allision as “*remote – extremely unlikely*”.
- 19.2.42. In order to estimate the severity of this effect, the applicant noted that where incidents have occurred at existing OWFs, they have primarily involved project vessels at low speed. The applicant therefore estimated that the most likely outcome would be of minor damage and/ or minor injuries. A worst-case scenario of allision involving a larger vessel might result in turbine collapse, holing and eventual flooding of a vessel and potential loss of life, although the applicant considered this to be unlikely.
- 19.2.43. The applicant maintained that there would be sufficient searoom to pass safely around the application site rather than through it. Therefore, it considered it unlikely that a small vessel, such as a recreational vessel, would choose to transit through the application site. The applicant indicated that were there to be a contact with a WTG, a glancing blow with minor damage would be the most credible outcome. During construction, with its 500m construction safety zone, fishing may take place. However, given the available searoom the applicant considered a glancing blow with minor damage to be the most likely outcome should any fishing vessel allide with a WTG. In light of this, the applicant has assessed that the severity of

consequence, overall, as 'negligible – serious'. With a 'negligible – moderate adverse' significance of effect, and the overall embedded mitigation to make risk 'as low as possible' (ALARP), the applicant considers that the residual effect would be 'negligible – moderate adverse (but ALARP)' which would not be significant in EIA terms [[REP3-020](#), paragraph 14.181].

Collisions

- 19.2.44. Turning to the risk of collisions, the applicant noted that this could be increased as otherwise navigable areas would be constrained and result in pinch points. The addition of construction vessels associated with the proposed development may also increase potential encounter and collision scenarios, especially as these vessels may cross-cut established routes to access the application site. Furthermore, blind spots may result from WTGs or the presence of large construction vessels blocking or hindering views of other vessels.
- 19.2.45. The applicant undertook modelling which is outlined in the NRA [[REP3-028](#)]. This indicated the frequency of collision events would be low, with 1 in every 2,190,308 years for commercial vessel vs commercial vessel collisions, 1 in every 16,226 years for commercial vessels vs ferries and 1 in every 1,139 years for ferries vs ferries. The applicant considered that, with the proposed development in place, the modelled likelihood of collision would be concentrated to the north of the study area. However, when compared to the baseline the increase was considered to be 'minor'.
- 19.2.46. The applicant noted that there would be a risk from construction vessels exiting the application site. The applicant therefore intends to implement a Vessel Traffic Management Plan (VTMP). This would define aspects of vessel management during the construction phase to mitigate the effects and deconflict Crew Transfer Vessels with other traffic. The applicant submitted an outline VTMP (oVTMP) [[APP-153](#)], which was updated during the examination, with the final version at [[REP5a-031](#)].
- 19.2.47. Recreational collision risk is considered by the applicant to be 'low', due to the low numbers of such vessels in the area.
- 19.2.48. Overall, considering the collision risk modelling of the frequency of occurrence was assessed by the applicant as 'remote – extremely unlikely'. The Marine Accident Investigation Branch data indicates a 1% loss of life occurrence within collisions, leading to, what the applicant considers to be, a 'moderate – serious' consequence.
- 19.2.49. According to the applicant, the consensus during hazard workshops held during the pre-application period (for further details see paragraph 19.2.79 below), was that no additional risk controls were identified beyond those set out as embedded mitigation. Consequently, these were considered to be ALARP. In light of this the residual effect in relation to the risk of collisions was considered by the applicant to be 'negligible – moderate adverse (but ALARP)' [[REP3-020](#), [paragraph 14.197].

Search and rescue

- 19.2.50. The applicant acknowledged that construction traffic would lead to an increased number of vessels and personnel in the study area and thus there may be an increase in the number of incidents requiring emergency response by search and rescue (SAR). The applicant undertook an assessment of the impacts of the proposed development on the likelihood of collision and allision for vessels. This showed remote return periods due to the generally low levels of vessel traffic in the study area. The applicant therefore anticipated that the proposed development would not noticeably increase the observed existing incident rates. Furthermore, the applicant considered that the on-site presence of project construction vessels would form additional resource to respond to any incidents in the area in liaison with the Maritime and Coastguard Agency (MCA). In line with MGN654 an Emergency Response and Cooperation Plan (ERCoP) would be produced and submitted to the MCA detailing how project construction vehicles would cooperate and assist in the event of an incident. This would be secured in condition 12 of the draft deemed marine licence (dDML) contained in schedule 6 of the draft Development Consent Order (dDCO) [[REP6-002](#)].
- 19.2.51. The applicant considered that, given the embedded mitigation and likelihood of incidents, a frequency of occurrence of 'remote - extremely unlikely' was assigned. Severity of occurrence has been assessed as 'minor' meaning that the effect would be 'negligible' which is not significant in EIA terms [[REP3-020](#), paragraph 14.205].

Snagging

- 19.2.52. Finally for construction, the applicant looked at the potential effect of snagging. This would be caused by cabling; both inter array and platform link cables. This could result in a reduction in under-keel clearance or a snagging risk to vessel anchors or fishing gear. During construction the risk would be from cables which have yet to have their protection completed and from a lack of awareness of the cables' presence. Snagging risks are greatest from fishing vessels when gear is deployed, particularly mobile gear types.
- 19.2.53. Embedded mitigation would consist of safety zones being established, and of cable burial and adequate protection. Furthermore, under the DML additional risk assessment would be undertaken where cable protection would exceed 5 percent of the navigable depth. In light of this the applicant considered it would be 'extremely unlikely' that there would be snagging. However, in the event that snagging were to occur, the severity of consequence has been assessed as moderate. As there could be no additional mitigation employed, the residual risk has been assessed by the applicant as 'minor adverse' which is not significant in EIA terms [[REP3-020](#), paragraph 14.213].

Operation and Maintenance effects

- 19.2.54. The applicant considered that many of the effects during operation and maintenance would be similar to those during construction.

Ferries and commercial vessels

- 19.2.55. For ferries and for commercial vessel routing, the applicant identified that there would be the same effects as during construction in terms of routing and severity of effects. As a consequence, the overall significance of effect was assessed as 'minor adverse' and therefore not significant in EIA terms [REP3-020, paragraphs 14.229 and 14.244].

Allision

- 19.2.56. For allision, the applicant used the same base data for risk as set out in paragraph 19.2.41. Given the identified increases in ferry and commercial vessel traffic identified, overall traffic was assumed by the applicant to rise by 15%. However, taking this increase in traffic into account, the applicant noted that the eastern Irish Sea already has offshore infrastructure present, including OWFs and oil and gas installations so navigators are familiar navigating around and between them. Consequently, as with construction, the applicant considered the frequency of occurrence to be 'remote – extremely unlikely', but acknowledged that were allisions to occur the severity of consequence would be 'moderate – serious'. With the consensus of the participants at the stakeholder workshop held prior to submission of the application, no additional risk controls were identified as being required. The applicant concluded the risks were ALARP. Consequently, the residual effect was assessed by the applicant as 'negligible – moderate adverse (but ALARP)' and not significant in EIA terms [REP3-020, paragraph 14.259].

Collision

- 19.2.57. For collision, similar risks as for construction were identified, but the applicant also noted that there would be maintenance traffic both at a 'standard' and 'heavy' level (1 in every 5 years). The applicant believed that due to the spacing between WTGs and the density of traffic passing adjacent to the site, a significant increase in risk of collision "*is not assumed*". In light of the embedded mitigation, the applicant considered that the frequency of occurrence would be 'remote – extremely unlikely', and for the same reasons as in construction the severity of consequence would be 'moderate – serious' if unlikely. Consequently, the residual effect was assessed by the applicant as 'negligible – moderate adverse (but ALARP)' and not significant in EIA terms [REP3-020, paragraph 14.276].

Search and rescue

- 19.2.58. For SAR, the applicant acknowledges that the presence of operation and maintenance traffic may lead to an increased level of vessels in the area resulting in an increase the number of incidents requiring emergency response. The final layout of the wind farm would be agreed post-consent with the Marine Management Organisation (MMO) in consultation with both the MCA and Trinity House and would include SAR considerations. The design of the OWF would be such to enable both helicopter and vessel access.

- 19.2.59. The applicant considered the existing incident rates in the area was low. The applicant's assessment for both the likelihood of collision and allision of vessels showed remote return periods due to the generally low levels of vessel traffic in the study area. The applicant therefore anticipated that the proposed development would not notably increase the observed existing incident rates. Given the embedded mitigation and likelihood of incidents a frequency of occurrence 'remote- extremely unlikely' has been derived. The applicant maintains that the severity of occurrence would be 'minor' given the embedded mitigation and available searoom. Consequently, the effect has been assessed by the applicant as 'negligible' and not significant in EIA terms [[REP3-020](#), paragraph 14.286].

Snagging

- 19.2.60. For snagging, the same risks as during construction were identified. The applicant maintained that fishers and vessel masters should be familiar with the location of cables, which would reduce the likelihood of a snagging incident. Cables would be buried or provided with adequate protection to mitigate the risk of snagging (see restriction referred to in paragraph 19.2.53 about water depth). Where main maintenance work, such as cable repair and burial, were to be carried out, then 500m safety zones would be established. In light of this, the applicant considered that the frequency of occurrence would be unlikely.
- 19.2.61. However, were a fishing vessel to snag a cable, the most likely outcome would be loss of gear and minor damage to the cable. The worst credible outcome would be the loss of the fishing vessel, and potential fatalities; however, this is considered unlikely. Overall, the severity of consequences assessed by the applicant as 'moderate' given embedded mitigation. As no additional mitigation is proposed the overall residual effect was assessed by the applicant as 'minor adverse' [[REP3-020](#), paragraph 14.295].

Communications, radar and positioning systems

- 19.2.62. The final potential impact identified by the applicant was that on communications, radar and positioning systems. The applicant noted that the equipment utilised for these systems may be adversely affected and the sound generated by WTGs could mask navigational sound signals from vessels or aids to navigation.
- 19.2.63. The applicant noted that the application site is outside all port limits, vessel traffic services or pilotage areas. The applicant identified in paragraph 14.298 of chapter 14 of the ES [[REP3-020](#)] various types of equipment. It confirms that discussions with the Ministry of Defence (MoD) have led to the MoD confirming that while military vessels do operate in the area, highly surveyed routes do not overlap with the application site.
- 19.2.64. The applicant reported various studies on the effect of OWFs on navigation equipment. This, it is stated, led to the development of a shipping route template (MGN564), which indicates 'intolerable effects' may be experienced up to 0.5nm from a wind farm site, and effects up to 1.5nm. As most vessels

pass more than 0.5nm from wind farms, the applicant maintained these effects would be lessened by normal operating practices.

- 19.2.65. The applicant confirmed that it has undertaken a study to assess the potential effect on radar early warning systems (REWS) and line of sight microwave communication links based on existing offshore oil and gas platforms during the operation and maintenance phase.
- 19.2.66. The REWS study [REP3-034] concluded that, while there would be small gaps in the detection map due to the presence of WTGs, these effects would largely be resolved by built-in advanced tracking technologies within any REWS. Furthermore, Automatic Identification Systems (AIS) would provide an alternative source of vessel information. The applicant therefore considered that the effect of the proposed development would be low and manageable without the need for additional mitigation measures.
- 19.2.67. The applicant also maintained that there would be no effect on microwave communication systems as the proposed development would be of sufficient distance from existing platforms.
- 19.2.68. While the frequency of occurrence has been assessed by the applicant as 'frequent', the severity of consequence would be 'negligible' leading to a 'minor adverse' effect which is not significant in EIA terms. No additional mitigation was proposed [REP3-020, paragraph 14.312].

Decommissioning effects

- 19.2.69. The applicant maintained that the effects during decommissioning would essentially replicate those effects during the construction phase. The applicant did, however, consider that there would be some different consequences for some individual effects.
- 19.2.70. As regards the effect on ferry and commercial vessel routing, the applicant considered that by the time of decommissioning *"routing with consideration of the windfarm would already be well established significantly reducing impacts to established ferry routing"* [REP3-020, paragraph 14.321]. The applicant maintained that while the frequency of occurrence in both cases would be 'frequent' the severity of consequence would be 'negligible' leading to a 'minor adverse' effect which would not be significant in EIA terms [REP3-020, paragraph 14.327].
- 19.2.71. All other effects would have the same consequences and degrees of effect in the construction phase [REP3-020, table 14.32].

Cumulative effects

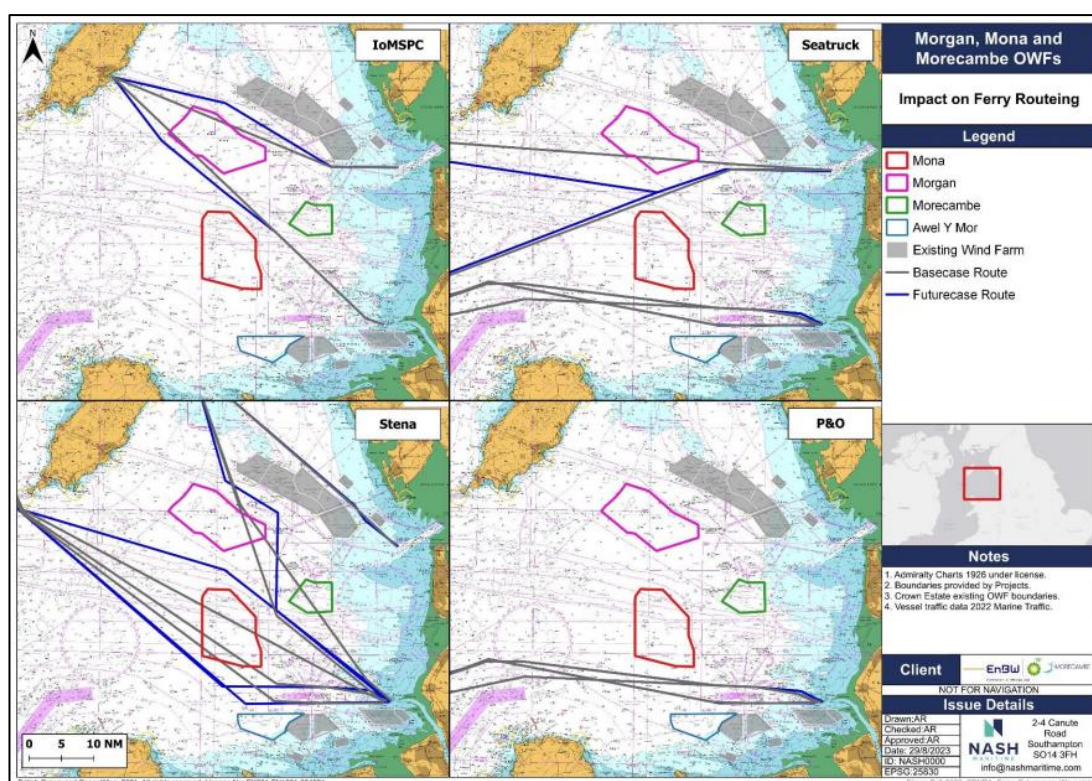
- 19.2.72. As with other topic areas the applicant considered the in-combination assessment with the proposed development and the Morgan and Morecambe Transmissions Assets (M&MTA) project (the 'combined assessment') separately from the cumulative assessment with other projects (the 'all projects assessment').

- 19.2.73. At the time of the submission of the application for the proposed development the only areas where the Preliminary Environmental Information Report (PEIR) found that the M&MTA project-alone consideration would have EIA significant effects which related to marine elements for the M&MTA proposal were:
- export cables from both the proposed development and the Morgan Offshore Wind Generation Assets Project
 - any booster station required for the Morgan Offshore Wind Generation Assets Project
 - OSPs for both the proposed development and the Morgan Offshore Wind Generation Assets Project
- 19.2.74. The booster stations were not pursued in the final application, and the OSPs were incorporated into the proposed development.
- 19.2.75. The effects identified in the M&MTA PEIR for that project-alone are set out in paragraph 14.383 of chapter 14 of the ES [\[REP3-020\]](#). All were considered to be non-significant in EIA terms.
- 19.2.76. The applicant noted that during construction and decommissioning of the M&MTA project there would be construction vessels and, similarly, operation and maintenance would require vessel movements.
- 19.2.77. The applicant considered that the effects from the M&MTA and the proposed development align (subject to small differences in wording). The applicant maintained that through the largely spatial separate effects and the embedded mitigation of each project, that although additive, there would be no material change to the overall significance of effects.
- 19.2.78. Moving to the cumulative assessment of all plans and projects. At the time of preparation of the original assessment, there was insufficient information on the proposed Moir Vannin OWF project for it to be considered in the CRNRA [\[APP-074\]](#), but this was later added as Appendix D to this document.
- 19.2.79. The CRNRA was commissioned jointly by the applicants for the Mona OWF, the Morgan OWF and the proposed development, and was developed using 2022 data. Two hazard workshops were held, the latter in September 2023 attended by representatives from ferry operators, regulators, commercial bodies, oil and gas operators, ports and the fishing community. This led to the applicant identifying seven potential impacts.

Ferry routing

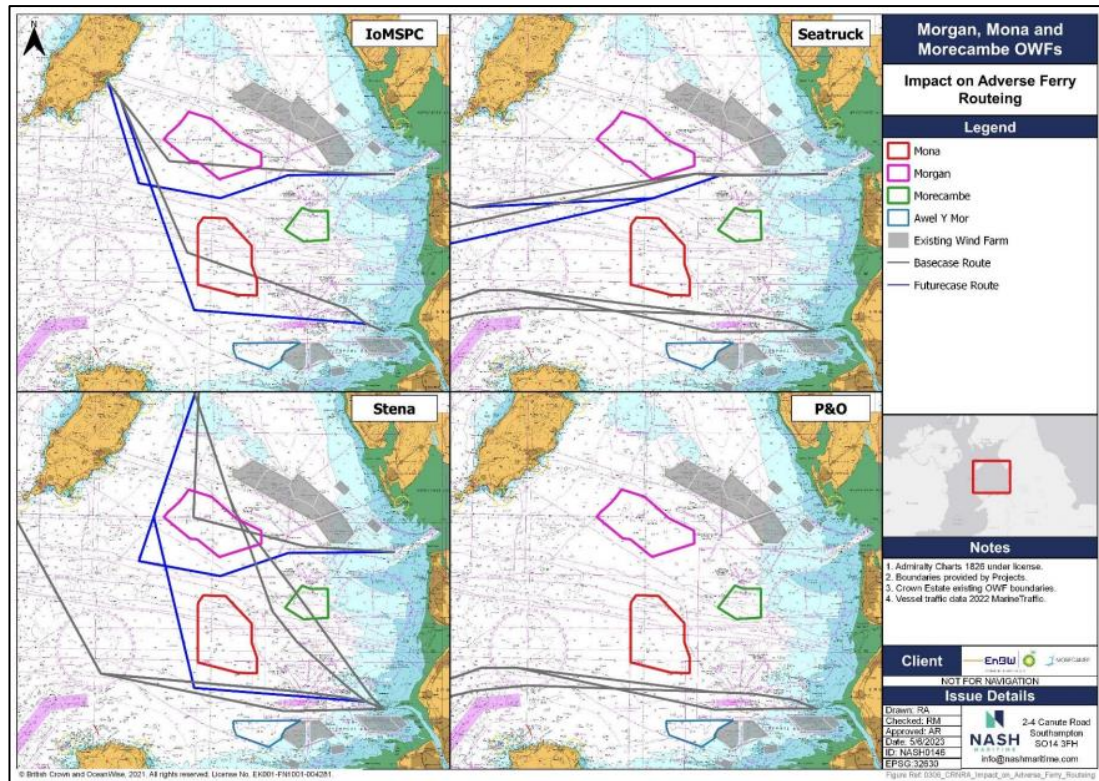
- 19.2.80. The first was on ferry routing. Figure 19 shows the assessed deviations to ferry routes during normal weather conditions. According to the applicant this showed cumulative deviations would be less than 5 minutes for most routes, with the exception of the Stena Line services between Liverpool and Belfast with an increase of between 13 and 16 minutes.

Figure 19: Cumulative impact on Ferry Routing in normal conditions (source figure 44 of [APP-074])



- 19.2.81. The applicant maintained that existing journeys are up to 8 hours in duration and have a significant variation of greater than 25 minutes in turnaround and transit times. The applicant considered that the increase in passage distance and time duration would be unlikely to have significant scheduling impacts but could increase pressures on operators, such as additional watchkeeping requirements.
- 19.2.82. During adverse weather conditions, there would be likely to be different effects on different routes. Figure 20 shows the applicant's assessment of this graphically.

Figure 20: Cumulative impact on Ferry Routing in adverse weather conditions (source figure 45 of [APP-074])



- 19.2.83. For the Heysham to Belfast route (Stena), instead of the additional 40 to 70 minute delay, there are two alternatives. Firstly, to increase the delay from around 63 minutes to between 103 and 133 minutes as vessels would travel to the west of the Morgan OWF and then north, or alternatively travel further west and pass east of the Isle of Man, which would reduce transit times but be more exposed to weather.
- 19.2.84. On the Belfast to Liverpool route (Stena), the applicant noted that the Mona OWF is clear of the key adverse weather routes, but the presence of all the OWFs may require the increased use of the adverse weather route increasing journey times. Routes east of the Isle of Man used in adverse weather are shown in Figure 20. The applicant noted that if routes between the OWFs were considered not navigable then vessels may travel to the west of the Isle of Man necessitating far greater journey times.
- 19.2.85. For the Heysham to Douglas route (IoMSPC), rather than the existing additional 10 to 23 minutes to the 'fair weather' journey, the presence of the Morgan OWF would, in 2.5m high seas (equating to monthly in summer and fortnightly in winter), would require an additional 24 minute journey, and thus add between 34 and 47 minutes to the journey.
- 19.2.86. Between Liverpool and Douglas (IoMSPC), which is serviced by a catamaran, the largest constraint is when wind and sea are on the bow. Simulations indicated the best approach was to reduce speed to half speed, leading to a 30% reduction in speed over the ground. In beam wind conditions, alternative routing using the lee of Anglesey is used. Here the

route then would become clear of the Mona OWF. Rather than the 10 to 33 minute addition to journey times, the presence of the OWFs would add a further 13 minutes.

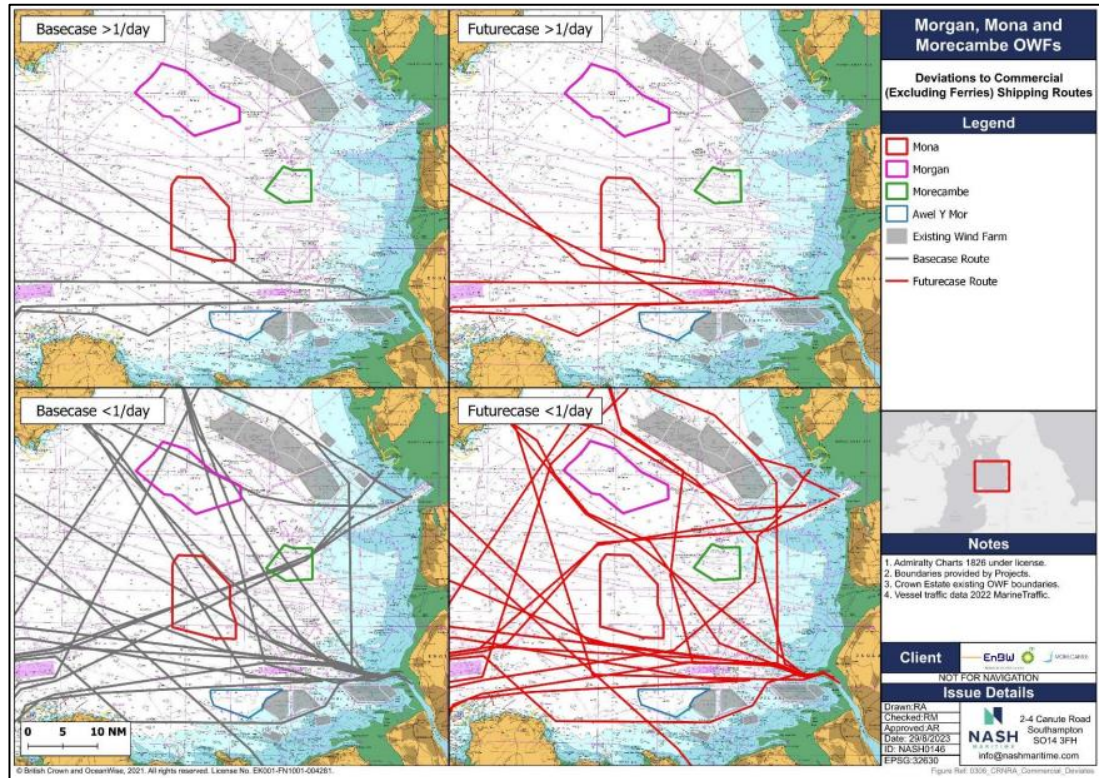
- 19.2.87. For the Heysham to Warrenpoint and Dublin routes (Seatruck) adverse weather routing was generally limited within the vicinity of the proposed OWFs. Within the survey data the routes diverged west of the proposed sites for the Morgan and Mona OWFs accounting for an additional 28 minutes of journey time. The applicant notes that “*on rare occasions*” adverse weather routes passed through the application site, and thus the masters of ferries would be required to use the ‘normal’ route.
- 19.2.88. From the above, the worst-case diversion in normal weather conditions would be an additional transit time of 16 minutes on a 480 minute journey on the Liverpool to Belfast route east of Isle of Man (east of Calder) route. In adverse weather the reduced searoom and increased journey times could, according to the applicant, “*necessitate additional operational constraints and could result in delays and cancellations to some services*”. Although the severity of consequence is considered by the applicant to be ‘minor’, this occurrence is considered to be ‘frequent’, leading to a ‘moderate adverse’ effect which is significant in EIA terms [[REP3-020](#), paragraph 14.399].
- 19.2.89. Notwithstanding this, the applicant considered that the proposed development itself would only have minor effects on the Belfast to Liverpool east of Isle of Man (east of Calder) route and would not materially contribute to this cumulative effect and no additional measures beyond continued engagement with ferry operators would be required.

Commercial vessels

- 19.2.90. The second effect relates to commercial vessel routing. Here the applicant noted that the most significant commercial shipping routes in the study area are between the Off Skerries TSS and the Liverpool Bay TSS. The applicant maintained these would be relatively unaffected by the projects. The routes from the west of the Isle of Man and Liverpool Bay TSS would necessitate a less than 0.5nm deviation around the south west corner of the Mona OWF.
- 19.2.91. Less trafficked routes are more dispersed across the study area. The most impacted route would be the Douglas to Liverpool TSS route adding 6.5nm and between Off Skerries TSS and Heysham, adding 4.8nm. In both cases less than one vessel per week utilises these routes.
- 19.2.92. Adverse weather effects on routing did not identify any notable changes in typical routes, notwithstanding a greater demand for anchorages along the Welsh coast, which would not change. The data did note some vessels loitering both to the west and in the proposed OWF sites, which the applicant considered likely to be riding out conditions before they could berth. The applicant contended that there would be sufficient clear searoom to the west of the OWF sites for this practice to continue.

- 19.2.93. Figure 21 shows the applicant's anticipated changes in commercial vessel routes with the proposed arrays in place.

Figure 21: Cumulative change in commercial vessel shipping routes (source figure 46 of [APP-074])

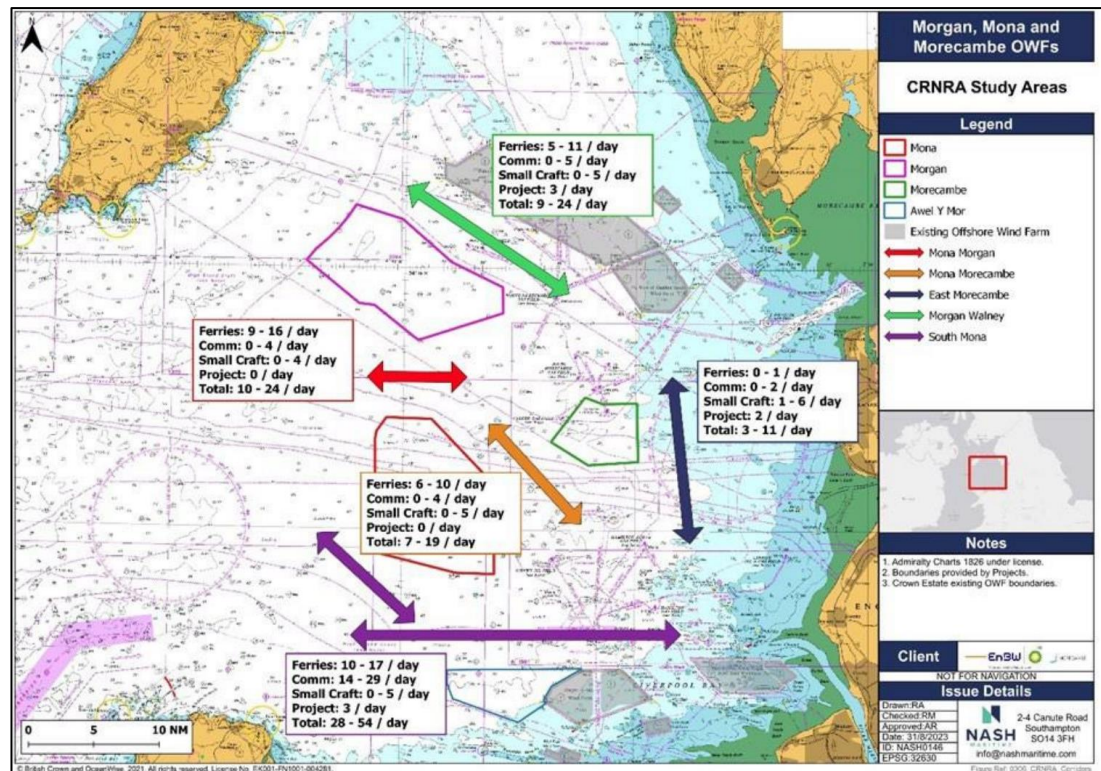


- 19.2.94. In light of all the above, although there would be a frequent occurrence as deviations would be required more frequently than annually, the applicant considered that, given the very low traffic intensity and the impact of route deviations set against the overall length of voyages, these changes would be unlikely to make operations unviable. With a 'negligible' consequence the applicant considered that the overall effect would be 'minor adverse' which would not be significant in EIA terms. No additional mitigation was proposed [REP3-020, paragraph 14.407].

Allision

- 19.2.95. The third effect would be in relation to the risk of allision. To analyse this, the applicant set out six corridors between the various OWFs, existing OWFs and the coasts. These are shown in Figure 22.

Figure 22: Cumulative Regional Navigation Risk Assessment corridors (source plate 14.5 of [REP3-020])



- 19.2.96. The applicant considered that all the corridors would be safe to navigate in normal weather conditions in the absence of other traffic. However, it accepted that accounting for regular and foreseeable traffic and adverse weather conditions there would be an increase in navigational risk.
- 19.2.97. According to the applicant's modelling, the risk of allision would increase from 1 in 105 years to 1 in 72 years based on current traffic. With foreseeable traffic included, this would increase to 1 in 63 years; this being due to the number of structures proposed in the Irish Sea.
- 19.2.98. Notwithstanding this increase, the applicant considered the risk of allision to be 'low', and the frequency to be unlikely. The severity of consequence would be 'moderate – serious' leading to a 'moderate adverse' effect.
- 19.2.99. The applicant reported that consensus was reached with stakeholders at the hazard workshop that appropriate risk controls would be embedded in the design of the proposed development. Additional risk control measures were discussed, but it was agreed that these would be disproportionate to the level of reduction that they might achieve. This meant that the risks were ALARP and thus the residual effect was 'moderate adverse (but ALARP)' and not significant in EIA terms' [REP3-020, paragraph 14.417].

Collision

- 19.2.100. The fourth risk relates to the risk of collision. As in relation to risk of allision, the study area was divided into corridors (Figure 22) with the Mona-Morgan,

Morgan-Walney and South Mona corridors at highest risk due to the compression of traffic within corridors.

- 19.2.101. Since the PEIRs for the Mona, Morgan and Morecambe projects were published the application site boundaries were amended resulting in more searoom, and it was determined by the applicant that all corridors would meet the minimum guidance requirements.
- 19.2.102. However, there would be an increased collision risk during adverse weather with seas beam-on. This could result in excessive and potentially dangerous vessel motions being encountered, compressing traffic further as vessels navigate adverse weather routes, such as to the south of Mona. Of the top 10 hazards identified in the CRNRA 6 were identified as collision hazards. In each case they were identified as 'medium risk – tolerable (if ALARP)'.
- 19.2.103. From this the applicant considered that the frequency of occurrence would be unlikely, and navigation simulations with ferry operators concluded that there was sufficient searoom to take avoiding action. With a severity of consequence of 'moderate - serious', the effect has been assessed by the applicant as 'moderate adverse'.
- 19.2.104. According to the applicant it was agreed at the hazard workshop that appropriate risk controls were embedded in the design of the project, and that any additional risk control measures would be disproportionate to any reduction in risk. Thus, the risks should be considered to be ALARP, and the residual effect would be 'moderate adverse (but ALARP)' and not significant in EIA terms [[REP3-020](#), paragraph 14.425].

Search and rescue

- 19.2.105. The fifth risk relates to the impact on search and rescue. In line with MGN654, the WTGs would be arranged in straight lines, with lines of orientation and spacing to allow safe access. This would be secured in the dDCO [[REP6-002](#)] (requirement 2 and DML condition 1 both give minimum distances for intra-row and inter-row separation between WTGs, and condition 9(1)(a)(iii) requires the layout for the WTGs and OSPs to conform with MGN654). The applicant believed that with the spacing set out, vessel or helicopter access would not be compromised.
- 19.2.106. While having more vessels in the area for maintenance would increase the incident rate, the applicant assessed the frequency of occurrence as 'unlikely'. The severity of consequence was assessed as 'minor' the effect was assessed as 'minor adverse' which is not significant in EIA terms' [[REP3-020](#), paragraph 14.432]. On this basis, no additional mitigation was identified.

Snagging

- 19.2.107. The sixth potential impact is that of snagging, particularly of cabling associated with the proposed development, the Mona and Morgan OWFs and the M&MTA project. The applicant assessed the frequency of

occurrence as ‘extremely unlikely’ given the embedded mitigation measures in each project. However, in the event of a snag, the severity of consequence has been assessed by the applicant as ‘moderate’, leading to a ‘minor adverse’ overall effect which is not significant in EIA terms. No additional mitigation was proposed [[REP3-020](#), paragraphs 14.436 to 14.438].

Communication, radar and positioning

- 19.2.108. The final effect relates to the impact on communications, radar and positioning. Here the applicant maintained that mariners are able to correctly interpret readings from radar and therefore mitigate impacts. While impacts on radar interference are primarily geographically localised, successive effects can lead to cumulative impacts.
- 19.2.109. The applicant reported that MGN654 indicates that interference from OWFs within 0.5nm may be intolerable. Most vessels pass more than 0.5nm from OWFs and OSPs and thus effects are lessened. As radar echoes develop at approximately 1.5nm MGN372 recommends a 2nm passing distance.
- 19.2.110. The applicant considered that there would be sufficient searoom between projects for radar effects to be avoided if vessels travel in the centre of the routes. The applicant also noted that vessels routinely pass within 1nm of existing OFWs meaning that there should be a good understanding of such effects.
- 19.2.111. The applicant’s ‘Radar Early Warning Study Technical Report’ [[REP3-034](#)] considered cumulative effects. This also noted that AIS can be integrated into REWS covering areas data when REWS would otherwise lose detection. Consequently, while the applicant acknowledged that impacts on communication, radar and positioning would be a frequent event, it considered that the severity of consequence was ‘negligible’ given the embedded mitigation. The applicant therefore assessed the overall effect as ‘minor adverse’ which is not significant in EIA terms. No additional mitigation was proposed [[REP3-020](#), paragraph 14.445].
- 19.2.112. As noted in paragraph 19.2.78 of this report the scoping report for the potential effects of the Moir Vanin OWF was published after the completion of many of the activities undertaken to inform the CRNRA. It is noted that the scoping report indicates a cumulative assessment will be undertaken for that project including the current projects, that is those dealt with under Offshore Wind Leasing Round 4 by The Crown Estate.
- 19.2.113. The applicant believed that it is likely that the scoping boundary would require deviations to regular commercial vessel routes in both normal and adverse weather conditions.
- 19.2.114. Appendix D to the CRNRA [[APP-074](#)] sets out the applicant’s consideration of the effects. The applicant considered that there were likely to be impacts on ferry routes in typical and adverse conditions and unacceptable risks to navigation safety between the Morgan Array Area, Walney OWFs and the Moir Vannin OWF. However, given the location of Moir Vannin OWF, the

proposed development was considered not to contribute to these impacts [REP3-020, paragraph 14.451].

Transboundary effects

- 19.2.115. The applicant identified that there would be potential transboundary effects, given the international nature of shipping and navigation. However, this was an integral part of the assessment discussed above and as such the applicant considered that there would be no further such effects.

Inter-relationships

- 19.2.116. Inter-relationships between issues are set out by the applicant in table 14.28 of chapter 14 of the ES [REP3-020]. These relate to effects on fishing, tug and service, recreational vessels, communications and search and rescue operations. These would be considered further and mitigated through the implementation of an In Principle Monitoring Plan secured in conditions 9, 14, 15 and 16 of the dDML contained within schedule 6 of the dDCO [REP6-002].

19.3. ISSUES CONSIDERED DURING THE EXAMINATION

THE CASE FOR INTERESTED PARTIES

Maritime and Coastguard Agency

- 19.3.1. The MCA in its Written Representation [REP2-034] indicated that:
- appropriate traffic data had been collected in accordance with MGN654, key and appropriate stakeholders identified, and suitable consultation took place
 - through the hazard identification (HAZID) workshops the extent of the site on the western boundary for the proposed development was reduced to tolerable levels
 - the embedded risk controls adopted are appropriate for reducing safety risk to ALARP
 - the two lines of orientation would meet MGN654, but would require MCA and Trinity House approval to minimise safety risks
 - marking and lighting, including aviation lighting, will need to be agreed with the MCA and Trinity House
 - prior to construction a SAR checklist and ERCoP will need to be agreed.
 - an agreed construction programme to avoid disparate sites would be required
 - where cable routes cannot be buried, a no greater than 5% reduction in surrounding water depth referenced to Chart Datum would be permitted
 - Safety Zones will need to be approved post-consent
 - in relation to cumulative impacts, the MCA was content that the changes made to the proposal prior to submission of the application have made the risks ALARP
- 19.3.2. The MCA also requested a small number of changes to the dDCO which were subsequently incorporated by the applicant.

- 19.3.3. The statement of common ground (SoCG) between the MCA and the applicant [[REP5a-038](#)] had all matters agreed.

Corporation of Trinity House of Deptford Street

- 19.3.4. Trinity House made a relevant representation (RR) [[RR-018](#)] and written representation [[REP3-100](#)] and concluded a SoCG [[REP5a-036](#)]. These raised no outstanding issues following incorporation of various matters into the dDCO [[REP6-002](#)].

Defence Infrastructure Organisation/ Ministry of Defence

- 19.3.5. The Defence Infrastructure Organisation (DIO) in [[REP5-074](#)] contacted the Royal Navy which confirmed that the proposed development would not affect submarine nautical paths and thus the Ministry of Defence had no concern relating to this matter.

Marine Management Organisation

- 19.3.6. In relation to shipping and navigation the MMO in its RR [[RR-047](#)] deferred to the MCA and Trinity House.

Isle of Man Government (Territorial Sea Committee)

- 19.3.7. The Isle of Man Government (Territorial Sea Committee) (IoMTSC) [[RR-031](#)] was particularly concerned regarding the cumulative impact to shipping, and therefore sought engagement to ensure such cumulative impacts could be minimised. This would particularly be the case when the Moir Vannin OFW is included, with its effects on the Douglas – Heysham route. The IoMTSC notes that the CRNRA omits the Port of Ramsey together with its Royal National Lifeboat Institution station.

- 19.3.8. In the SoCG [[REP5a-037](#)] with the IoMTSC:

- for the project-alone it was agreed the proposed development:
 - does not affect the Douglas to Heysham ferry route
 - has minimal effects on the Liverpool to Douglas ferry route and does not increase transit times
 - would not have significant effects on lifeline ferry services
- for cumulatively effects, there was no agreement, however it was reported there would be no material impact in respect of the proposed development.

UK Chamber of Shipping

- 19.3.9. The UK Chamber of Shipping (UKCoS) in its RR [[RR-084](#)] supports Net Zero Carbon by 2050 and noted that ports and shipping industries play an essential part in that. It seeks to ensure there is minimum disruption or economic loss and to ensure navigational safety.

- 19.3.10. The UKCoS stated it was closely involved in the pre-application process through its various stages and welcomes the reduction to the current

application site size. However, there remained ongoing cumulative concerns relating to safety, deviation and scheduling.

19.3.11. In the SoCG between the parties [REP6-026] all matters were agreed with the exception of the following. In each case the UKCoS considered:

- the significant operational impact on lifeline ferry services between Liverpool and Belfast would be contributed to by the proposed development, and that there should be an equitable means to mitigate this determined by the applicant or Secretary of State. At the end of the examination UKCoS maintained its position, “*but it is acknowledged that matters will conclude with either a commercial side agreement or protective provisions in the dDCO*”
- given the additional risk from cumulative projects additional towing capability or resource may be required

19.3.12. The SoCG noted that the oVTMP was amended at deadline (D) 5, and again at D5a [REP5a-031], to consider towage capability of project vessels and the post-consent, pre-construction ERCoP would undertake this analysis. The UKCoS, while not agreeing that additional towage would not be required, accepted that this did not preclude consent.

19.3.13. On both these points, discussions were continuing between the parties at the close of the examination.

Stena Line Ltd

19.3.14. Stena in its RR [RR-078] noted it had engaged with the applicant at the pre-application stage. Recording the changes to the proposal prior to submission, it noted that the proposed development would increase the residual risk, and would also increase transit times, potentially increasing turn-around in port, and use more fuel.

19.3.15. In [REP3-115] while accepting that the risks are ALARP, Stena noted that the risks identified do still exist and would be raised above the current level. Stena would have to take on this risk and it can only be for Stena to determine whether that risk is acceptable as the ferries “*zig-zag between four [OWFs]*”. The main risks arising would be:

- funnelling of marine traffic into reduced seaways
- additional vessel encounters particularly at the corners of developments
- reduced weather options during adverse weather events, the frequency of which is increasing with Stena being required to mitigate potential effects on passengers and cargo
- incidents on board resulting in even temporary loss of power while navigating through the channels increases the possibility of an allision with construction or maintenance vessels or a structure
- potential radar interference
- additional red navigational lights will make it difficult to distinguish other red navigational lights

- 19.3.16. Furthermore, the increased travel times would have commercial implications. While the additional distances may seem small on an individual basis, over the life-time of the proposed development these would be significant.
- 19.3.17. Stena was concerned that if the four projects do go ahead, it would be seriously disadvantaged both operationally and commercially. This would be contrary to UNCLOS article 60.7 and would represent a critical interference with its operations. It therefore sought PPs or a side agreement.
- 19.3.18. PPs for the benefit of Stena are included in Part 4 of schedule 3 of the dDCO [\[REP6-002\]](#). The main elements of these would be:
- to notify Stena 28 days before the start and of intended duration of:
 - any works within 1.5nm of the Liverpool to Belfast route
 - subsea cable circuits and subsea cable duct works
 - to consult Stena prior to submitting the VTMP
- 19.3.19. The SoCG with Stena [\[AS-017\]](#) was only signed on behalf of the applicant. The main outstanding points both in the project-alone and cumulative situation being:
- the navigational risk would be increased, and the proposed development would represent an obstruction and risk to navigation
 - there is a difference between TSSs and sea lanes
 - the alternative routes “forced” upon Stena to render the project ALARP are neither suitable nor satisfactory.
 - there is uncertainty as to the effect on radar through interference, and further monitoring is necessary
- 19.3.20. It was noted that discussions were continuing.

Isle of Man Steam Packet Company

- 19.3.21. In its RR the IoMSPC indicated [\[RR-032\]](#) “*[d]ue consideration has been given to any potential impact of the windfarm site concerning ferry sailings between the Isle of Man and the UK. Due consideration has been given to safety of navigation, ability to render assistance, weather routing, increased cost and emissions due to extra mileage, and socio-economic impact to the Isle of Man as a result of ferry disruption*”.

Ørsted IPs

- 19.3.22. The Ørsted IPs submitted RR’s which indicated they were concerned about the potential for rerouting to be required and traffic to increase in the vicinity of the West of Duddon Sands OFW and Barrow OFW. They sought further information, for example which port would be used, and a level of co-ordination between them and the applicant.
- 19.3.23. In the Ørsted IPs Summary and Signposting Document [\[REP6-065\]](#) the Ørsted IPs reiterated their concerns about the risk of allision in relation to the Barrow OWF and West of Duddon Sands OWF and the cumulative effects

with other projects on their assets, particularly in relation to project vessels and displacement of third-party traffic. The Ørsted IPs also expressed concern that the oVTMP [REP5a-031] was written at too high a level. The Ørsted IPs requested to be party as a consultee in relation to the Marine Navigation Engagement Forum, and they expected close co-operation on the Marine Pollution Contingency Plan.

- 19.3.24. There were two points not agreed in the signed SoCG relating to shipping and navigation [REP6-028] although in both cases it was agreed that these were of no material impact. These related to the oVTMP and the ERCoP. In each case the Ørsted IPs sought confirmation on the face of the relevant document that it would be consulted on the documents prior to their submission for approval.

Chrysaor Resources (Irish Sea) Limited, a subsidiary of Harbour Energy PLC

- 19.3.25. Harbour [REP1-102] in section 3.0 expressed concerns about the need to manoeuvre large vessels, including jack-up drilling rigs and heavy lift vessels, and associated tugs. While the PPs in the dDCO [REP6-002] would ensure no wind turbine within 1.5nm of the relevant oil and gas platform, there was concern that temporary infrastructure such as buoys would impede access. It therefore sought that no temporary or permanent surface infrastructure (except with Harbour's consent) be placed within:

- 1.0nm around the Calder platform
- 1.0nm corridor between the Calder and CPP1 platform
- 500m each side of the Calder pipelines and subsea cables

Furthermore, a Co-operation and Co-existence agreement should be in place between the applicant and Harbour to require the parties to work together.

- 19.3.26. Without these provisions Harbour argued it would suffer economic loss from delay and disruption and the potential for adverse safety conditions.
- 19.3.27. To avoid collision or allision Harbour noted [REP1-102] in section 5.0 that due to the proposed development there would be some gaps in detection from the REWS on the AP-1 platform. Harbour took the view due to the proximity of the proposed development to the Calder platform *there "should be little vessel traffic choosing a route close to the Calder Platform other than vessels serving the Calder Platform or the [proposed development]."*
- 19.3.28. Consequently, notwithstanding the potential impairment of the REWS, Harbour accepted that disruption from allision events would be unlikely. Thus, there would be no associated economic loss or effect on safety.
- 19.3.29. In the SoCG with Harbour [AS-018] all matters in relation to shipping and navigation were agreed. However, it was noted that until actual cessation of production from the Calder Field Spirit is the operator/ duty holder and this agreement only applies from that time.

19.3.30. The main points agreed were:

- Despite impairment of the effectiveness of the REWS by the proposed development during the decommissioning phase there would not be a significantly greater risk of allision.
- While not drafted identically the two sets of PPs provided, in the dDCO [REP6-002] on behalf of the applicant and [REP5a-079], contain similar provisions. A 1nm marine buffer zone around Calder and a 1nm marine corridor between Calder and CPC were also agreed for the decommissioning phase. It also agreed that a separate co-existence agreement could supersede these provisions.

Spirit Energy Production UK Limited

19.3.31. In Part 6 of its RR [RR-077] Spirit set out its concerns in relation to shipping and navigation. These related to the following main areas:

- increase in vessels leading to an increased risk in allision and collision, including false alarms, production shutdowns and evacuation of personnel
- ensuring access for platform supply vessels (PSV), and emergency response and rescue vessels (ERRV) which would be impaired by the proposed development and would require an additional ERV
- ensuring access for jack-up rigs – a minimum radius of 1.5nm is requested, this would be for safety reasons
- ensuring simultaneous operations are able to take place so as not to compromise existing operations

19.3.32. If a change to the existing safety case were necessary, significant cost and effort would be necessary, and a material change would require this to be submitted to the competent authority for approval, which is not guaranteed.

19.3.33. Detailed criticisms were made of the PPs, particularly as to when they would apply, being set from active heli-decks rather than platforms, which was not seen as being suitable for safe marine operations and a requirement for designated access paths to each platform.

19.3.34. Spirit noted that it has REWS installed on offshore oil and gas platforms to monitor nearby vessels to provide protection against collisions. OWFs can interfere with these. In its RR [RR-077] Appendix E it raised a number of what it described as “*incorrect assumptions*”.

19.3.35. The SocG with Spirit [AS-019] sets out the following matters relating to shipping and navigation as not agreed:

- Spirit “*requires*” the applicant to provide a vessel collision risk assessment (VCRA) including the impact of vessels on collision course to enable Spirit to evaluate the impact on its safety case.
- Spirit notes that if a modified REWS is in place prior to construction of the proposed development it would help Spirit to identify and track vessels that may be on a collision course with Spirit’s assets. However, this does not reduce or mitigate the increased risk of collision.

- 19.3.36. In its D6 submission [[REP6-058](#)] it expanded on these points.
- 19.3.37. In relation to the safety case, Spirit acknowledged that the ‘Nash Maritime Technical Note on the Coexistence of Spirit with Morecambe OWF - Shipping and Navigation’ provided in Appendix E to the Applicant’s D5 Submission [[REP5-067](#)] provided what Spirit considered to be a “*first-step*” to allow it “*to understand the impact on ship collision risks*”. However, Spirit considered that it did not provide sufficient information on Individual Risk Per Annum (IRPA) as it had used a coarse categorisation of vessels rather than Spirit’s existing VCRA relating to potential energy impact. It therefore considered that it would not be possible to determine the fraction of collisions that could result in minor, major or catastrophic consequences to personnel.
- 19.3.38. Spirit noted that there is a difference in several orders of magnitude between the collision frequency for the CPC in Spirit’s current VCRA and the applicant’s reported collision frequency. This has the potential to significantly increase the IRPA depending on the vessels and their impact energies. According to Spirit no explanation for this difference has been provided.
- 19.3.39. Consequently, given these uncertainties Spirit considered it is unable to accurately assess the impact on IRPA. Fuller details are set out in section 3.3 of Appendix B to [[REP6-058](#)].

ISSUES

- 19.3.40. We consider that for shipping and navigation and main important and relevant issues for reporting are:

- status of routes
- adverse weather
- radar early warning systems and risks of collision
- ferry routing
 - project-alone
 - cumulative effect
- commercial vessels
- risk of collision
- search and rescue
- snagging
- communications, radar and positioning systems
- searoom for decommissioning of existing oil and gas assets

Status of routes

- 19.3.41. Stena expressed concerns that the proposed development would potentially be contrary to article 60.7 of the UNCLOS. This states: “*Artificial islands, installations and structures and the safety zones around them may not be established where interference may be caused to the use of recognized sea lanes essential to international navigation.*” This is also referenced under section 36B of the Electricity Act 1989.

- 19.3.42. At issue specific hearing (ISH) 3 this led us to ask whether the routes between England and the Isle of Man constituted ‘international navigation’ (Action Point 21 of [\[EV7-006\]](#)). There was no dispute, and we agree, the routes between England and the Republic of Ireland are international routes as they are between separate states under UNCLOS, and those between England and Northern Ireland are not as part of the United Kingdom of Great Britain and Northern Ireland.
- 19.3.43. In its response [\[REP4-061\]](#) the applicant noted that the term ‘international navigation’ is not defined under UNCLOS, but considered that the term should be understood more fully from the phrase in which it sits, that being *“recognized sea lanes essential to international navigation”*. This phrase also being set out in paragraphs 2.8.326 and 2.8.327 of NPS EN-3.
- 19.3.44. The applicant’s view was that this is referring to TSSs, such as at Liverpool Bay and Barrow and Off Skerries. We note that in the SoCG with the MCA [\[REP5a-038\]](#) it was agreed that neither the proposed development on its own nor cumulatively would interfere with the use of a TSS. Stena sought to show that its current passage is a recognised ‘sea lane’ [\[REP6-066\]](#) that has existed since 1824 [\[REP3-115\]](#). In our view, the phrase needs to be considered as a whole. The routes between Liverpool and Belfast are just that, routes, rather than a ‘sea lane’ identified and utilised by many different users and used to minimise risks.

ExA’s consideration on status of routes

- 19.3.45. In our view, the phrase in UNCLOS and the NPS EN-3 needs to be read as a whole and relates to the effect on a TSS rather than derivative point as to whether the routes between England and the Isle of Man are ‘international’. No TSSs would be affected. On this basis, we are satisfied that the proposed development would comply with article 60.7 of UNCLOS and paragraphs 2.8.326 and 2.8.327 of NPS EN-3.

Adverse weather

- 19.3.46. In order to understand what is meant by ‘adverse weather conditions’, in ExQ1SN7 [\[PD-011\]](#) we asked the applicant and shipping companies what constituted ‘adverse weather’ and how frequently it occurred. The applicant [\[REP3-068\]](#) considered, based on data from the surveys, that ‘adverse weather’ occurred around 5 to 10 times per year.
- 19.3.47. Stena [\[REP3-116\]](#) noted comfort and safety constraints for passengers and crew, but also specified adverse weather, *“while not an exact science, [occurs] when beam seas of more than 3m ... are encountered without being countered then negative consequences may be anticipated”*. As to frequency, Stena noted that ‘named’ storms were increasing. It noted that when vessels are constrained due to available searoom, delays or cancellations may be the only alternatives available. Currently, cancellations only happen in single figures each year with delays at double that frequency.

ExA's consideration on adverse weather

- 19.3.48. Our view, therefore, is that adverse weather, while an expected event, does not occur that frequently.

Radar early warning systems and risks of allision

Allision risks in relation to oil and gas installations

- 19.3.49. We note that Spirit only used the term 'collision', rather than differentiating between those occasions when something moving hits a stationary object, described as 'allision' by the applicant, and when two moving objects hit each other, described as 'collision'. As Spirit's concerns predominantly related to vessels hitting one of the existing oil or gas platforms [[RR-077](#), paragraph 6.3] our view is that its concerns predominantly related to those of allision (the term we will use as described) as opposed to collision.
- 19.3.50. Spirit was also concerned that due to effects on REWS, there might be an increase in the number of occasions when precautionary down-manning or evacuation might be required, with ERRV being utilised to intercept such vessels and thereby be taken away from existing safety tasks.
- 19.3.51. Other than through growth in traffic over time, the quantum of vessels travelling in the vicinity is likely to remain as at present. Given the short-term nature of Spirit's (and Harbour's) remaining operational oil and gas activity along with the timeframe for decommissioning, in our view, the amount of traffic in the area should be considered to be static. By creating a physical obstruction, the amount of searoom would reduce. One of Spirit's particular concerns related to traffic travelling from the east through the array. This, of course, is contrary to one of Spirit's own arguments that the proposed development would concentrate traffic in other areas.
- 19.3.52. In response the applicant updated its 'Radar Early Warning System Technical Report' [[REP3-034](#)] which considered the effects of 'shadowing' of vessels by the WTGs and OSPs. The conclusion was that in both project-alone and in-combination on, among others, Spirit's AP-1 platform:
- "show that due to the presence of the turbines there would be small gaps in the detection map due to the elevated thresholds and shadowing effects from the wind turbines. However, these effects will be largely resolved by the built-in advanced tracking techniques within the REWS. Additionally, the integration of the available AIS data with the REWS coverage will provide an alternative source of vessel information and location within the zones where the REWS may lose detection".*
- 19.3.53. In [[REP4-069](#)] Spirit noted and welcomed the report, but did not say whether it agreed with the conclusions. We therefore asked in [[PD-018](#)] ExQ3SN1 whether Spirit accepted the findings. Spirit's response [[REP5a-076](#)] was:

"Spirit Energy is of the opinion that the REWS system that will be in place by commencement of construction of the wind farm (2029)

should have the software and hardware equipment including a new AIS system and radar tracker (ARTS) that processes real-time data from radar rotations. However, potential limitations of the ARTS which extrapolates the expected target position between radar sweeps and therefore compensates for missing radar sweeps for a configurable period is circa 30 seconds. It is expected that the REWS system will be equipped with a Pathfinder2 radar antenna which rotates at approximately 2.5 seconds per sweep so would take 25 seconds for 10 rotations, however the exact model of the antenna is still to be confirmed. Therefore Spirit Energy cannot confirm whether the REWS system on CPC platform at the commencement of wind farm construction will be capable of compensating and maintaining the tracking of vessels travelling through the wind farm array”.

- 19.3.54. Spirit accepted in the same response that the results of the modelling of vessels traveling through the proposed development demonstrated a very low probability of occurrences where losses extend beyond 10 consecutive radar rotations so that a vessel would not be identified.

Other allision risks

- 19.3.55. We note that the Ørsted IPs were concerned about potential allision risks in relation to the Barrow and West of Duddon Sands OWF from project vessels and displacement of third-party vessels. In our view, given the lack of knowledge as to the port(s) that would be used, we consider that both the oVTMP [[REP5a-031](#)] and then, the ERCoP, are sufficiently detailed and would allow for appropriate co-operation between parties, including the Ørsted IPs. The risk of allision to these assets will depend on which port(s) are used.

ExA's consideration on radar early warning systems and risks of allision

Allision risks in relation to oil and gas installations

- 19.3.56. In our view, as we have discussed elsewhere, co-operation and co-existence as required by NPS EN-3 gives responsibilities both to the applicant and existing operators to facilitate development where appropriate. Given that the upgraded REWS system referred to in the quote in paragraph 19.3.53 has yet to be confirmed, it would be reasonable for Spirit, which would be commissioning it, to ensure that an appropriate system is included. It is also the case that cessation of production may occur before the proposed development takes place meaning this discussion may be academic.
- 19.3.57. Therefore, we are of the conclusion that while the proposed development would increase the risk of allision, the presence of the proposed development to the east could be properly mitigated by the use of REWS in the relatively short period when both sets of infrastructure, that is the existing oil and gas facilities and the proposed development, would be in place.
- 19.3.58. It is also the case that the applicant has agreed that there would be a 1.5nm buffer zone from the outer extremity edge of the CPC until the CPC has been decommissioned (see definition of ‘WTG and OSP marine buffer zone’ in

paragraph 2 of part 3 of schedule 3 of the dDCO [[REP6-002](#)] and paragraph 7 of the same part). This would assist in ensuring that any increased risk of allision occasioned by the proposed development would be partially mitigated as well as its primary function of allowing operation in the short term and, thereafter, decommissioning.

- 19.3.59. Spirit was also concerned that the applicant had not produced a VCRA including the impact of vessels on collision (allision) course, with particular reference to the size and speed at which vessels may travel to allow for an assessment of the potential damage that might occur. Other than in the most extreme situation, in our view any allisions that do occur are likely to involve vessels moving at very low speeds.
- 19.3.60. In our view it cannot be reasonable for the applicant to be required to undertake such an assessment. A VCRA will involve a significant number of inputs, for example structural details of the offshore installations, which can only be known by the operator or owner. These are also likely to be commercially sensitive since they would set out the remaining safe life of the installation. While this will be an obligation on, in this case, Spirit, and it may feel it has to update its safety case, this is a matter that should reasonably be dealt with through PPs and, if necessary, arbitration.
- 19.3.61. We also note that Spirit's objection relates to both operation and decommissioning phases while Harbour, which will take over the Calder platform at the cessation of production, has no objection following cessation of production (see paragraph 19.3.29 of this report). While the Spirit infrastructure is located in a different location, we have seen nothing which would lead us to a conclusion that different considerations would apply to the two sites. We are therefore satisfied that there is no issue during decommissioning phases of the oil and gas installations.
- 19.3.62. Spirit reports that there would appear to be differences in orders of magnitude as to the allision frequency between Spirit's current VCRA and the applicant's reported frequency. However, these risks would be still very small, and the differences would be smaller still. In table 1 of appendix B of [[REP6-058](#)] some of the risks reduce, and this was not disputed. There would appear, therefore, to be some reductions in risk as a result of the proposed development which, in our view, should be factored into the overall risk assessments.
- 19.3.63. Spirit's concerns outlined above, flowed into a wider concern that the increases in risk from the various effects of the proposed development would raise the risk for individuals to unacceptable levels. Without the full range of inputs it is not possible for us to assess how this would affect the overall IRPA for a particular individual. However, on the information in front of us we are not convinced that this would render the risks unacceptable.
- 19.3.64. Given that the existing oil and gas infrastructure is to be decommissioned in the shorter-term, we consider that the increase in risk of allision occasioned by the proposed development to the oil and gas industry would be, as the applicant has assessed, that is a 'negligible - moderate adverse but ALARP'.

Other allision risks

- 19.3.65. We are satisfied that the proposed development would not raise risk to allision to unacceptable levels, that is above ALARP; any adverse effects would be at worst 'moderate'.
- 19.3.66. For allision risks within the application site, we are satisfied that there would be sufficient searoom for vessels currently transiting the application site to go around it rather than through it. Those which enter the application site are likely to be there for a specific reason, for example, maintenance of the proposed development, fishing or similar. Given the minimum separation of the WTGs as set out in the dDCO [REP6-002], in the event of an allision the most likely outcome would be a glancing blow with minor damage. We are therefore satisfied that the risks are ALARP and therefore comply with paragraphs 2.8.326 and 2.8.327 of NPS EN-3.

Ferry routing

Project-alone

- 19.3.67. There are two 'normal weather' ferry routes that utilise the application site. For the Liverpool to Belfast (east of Calder) route (Stena) the planned route is through the application site. However, the surveys only indicate it was used a total of four times during the two 2019 and single 2022 14 day surveys. For the Liverpool to Douglas route (IoMSPC) the planned route does not go through the application site, but 22 vessels traversed it in the 2019 and 2022 surveys. In 'adverse weather' both routes tend to travel further west along the lee of the North Wales coast. The presence of the proposed development would result in traffic having to go around the array.
- 19.3.68. Stena expressed concern that additional red lights upon the proposed development could lead to confusion with red navigational lights upon vessels. However, as the applicant pointed out in its 'Comments on Deadline 3 Submissions by Interested Parties' [REP4-058, point REP3-115-02] lights within arrays would be flashing 'red morse W' rather than the constant light on a vessel.

Cumulative effects

- 19.3.69. As noted above in paragraph 19.2.79 the CRNRA was commissioned jointly with the promoters of the Mona OWF and Morgan OWF. As well as these three schemes, it also included the Mooir Vannin OWF, albeit included at a later date.
- 19.3.70. For normal weather conditions, we concur with the applicant that as the cumulative diversion would be less than 5 minutes for most routes on an 8 hour journey any effects would be 'minor'. The longer deviation on the Stena Liverpool to Belfast route of between 13 and 16 minutes would be caused by the need for the ferry to 'zig-zag' through and between the various OWFs.

ExA's consideration on ferry routing

- 19.3.71. We concur with Stena that the proposed development would result in additional costs from additional fuel for the longer distance that would need to be travelled to avoid the proposed development. There may also be the need for additional watchkeeping and similar activities. We also concur with Stena that the proposed development would result in an increase in its risks. These would be risks of collision with other vessels in the vicinity both through the 'loss' of searoom and from vessels emerging from the array having not previously been identified by those travelling in the vicinity.
- 19.3.72. However, the policy test in paragraphs 2.8.179 and 2.8.331 of NPS EN-3 is that risk to navigational safety should be "*as low as reasonably practicable (ALARP)*". No party dissented from this view, nor that the risks had not been reduced to ALARP. It was Stena's view that although the risks were ALARP they were increased from the current level.
- 19.3.73. We agree with the applicant that the difference between lights permanently on and those flashing Morse 'W' would mean that there would be unlikely to be any material confusion between the two.
- 19.3.74. We agree with the applicant that in the project-alone situation there would be policy compliance but a 'minor' adverse effect for the reasons it set out. Any increased risks would be policy compliant.
- 19.3.75. We note that there are PPs for Stena, but these deal with notifications that works are to take place rather than providing mitigations for the additional journey time. However, as there are already notable differences in journey time, greater than the delay caused, we consider that this effect would be 'minor'.
- 19.3.76. For adverse weather conditions, as set out in paragraphs 19.2.83 to 19.2.88 there would be notable changes to routings and, generally, additional journey times, and the development would also potentially leave ferries more exposed to weather. No IP challenged the assessment. With the exception of the Stena Liverpool to Belfast route, which is discussed in the previous paragraphs, the additional distance was caused by the other proposed OWFs, and no additional weight should be applied against the proposed development, since it would have no effect on the overall assessment.
- 19.3.77. In combination with the M&MTA project we concur that there would be no additional effects than the project-alone assessment due to the physical separation and the relatively short period in which the M&MTA would be under construction.
- 19.3.78. For the wider cumulative situation with the exception of the Stena Liverpool to Belfast route, which is discussed in the previous paragraphs, the additional distance was caused by the other proposed OWFs, and no additional weight should be applied against the proposed development, since it would have no effect on the overall assessment.

Commercial vessels

- 19.3.79. Many of the considerations relating to ferries will equally apply to commercial vessels. Although the studies indicated that the application site was crossed by commercial vessels, these were relatively infrequent at less than one vessel movement per day. The effects would be the same as for ferries in both the normal and adverse weather conditions and we therefore consider these effects would be 'minor'.
- 19.3.80. The UKCoS requested that the applicant, along with the other operators of the proposed OWFs in the vicinity, provided additional towage capacity, particularly to deal with additional risks.

ExA's consideration on effect on commercial vessels

- 19.3.81. Due to the small increase in requirement, in our view, none of the risks on commercial vessels, either on a project-alone or cumulative basis, would necessitate provision of additional towage capacity.

Risk of collision

- 19.3.82. The two main increases in risk for collisions relate to reductions in searoom, leading to concentrations of vessels into smaller areas, and from the vessels emerging from the application site and colliding with vessels outside. It is noted that the area does not have high numbers of recreational vessels at present and we have no reason to believe that this situation will change.

ExA's consideration on risk of collision

- 19.3.83. Given the likely rerouting of vessels, the most probable location for collisions would be to the north of the application site. The risk modelling was agreed with participants at the hazard workshop. Under condition 9(i) of the dDML the applicant is required to have a detailed VTMP approved by the MMO following the principles set out in the oVTMP [[REP5a-031](#)] before commencement.
- 19.3.84. During both construction and operation and maintenance, including in 'heavy maintenance' years, while the proposed development would increase the risk of collisions between vessels, we are satisfied that the risk would be remote and thus extremely unlikely. Should a collision occur then we do accept that the outcomes could lead to a loss of life and thus should be considered to be 'severe'.
- 19.3.85. However, as no additional risk controls were identified as being possible in the hazard workshops, we are satisfied that the risks are ALARP and therefore would comply with paragraphs 2.8.326 and 2.8.327 of NPS EN-3.

Search and rescue

- 19.3.86. With the increase in personnel in the area during both construction and maintenance and the increased risks identified, there would be an increase in the risk of requiring search and rescue facilities.

ExA's consideration on search and rescue

- 19.3.87. We note that both the MCA and Trinity House are content with the arrangements subject to matters such as the SAR checklist and ERCoP being agreed in line with MGN654, which would be secured within the DML in the dDCO [REP6-002].
- 19.3.88. Spirit makes the point that increases in risk could lead to the requirement for SAR to visit its operations and thus divert it from other requirements. This is discussed further in chapter 11 of this report. However, conversely, during construction or thereafter during maintenance activities that there would be additional vessels in the vicinity which also provide additional resource for SAR should this be required in an emergency.
- 19.3.89. While with additional activities taking place there is a greater risk of the need to involve SAR, we agree with the applicant, that through the normal controls that would continue to be in place that the frequency of occurrence would be 'remote – extremely unlikely' with a severity of occurrence of 'minor' leading to a 'negligible' effect.

Snagging

- 19.3.90. As noted above, there would be a risk of snagging of cables between the WTGs and, if there were two, the OSPs. The aim is that cables would be buried, but there are occasions where it might have to be laid on the surface and cable protection measures provided above. Cable protection should be a maximum of 1.5m above the surface, and identification if this were to exceed 5% of the navigable depth (see condition 9(d)(i)(bb) in the dDML in the dDCO [REP6-002]). To not require such notification requires a depth of 30m. As can be seen from figure 7.1 [REP3-036] existing water depths are only over 30m towards the western part of the application site.
- 19.3.91. The applicant has identified that risks during construction would be during any period between a cable being laid and any protection provided. This risk cannot readily be mitigated and thus could have a 'moderately severe' consequence. This would represent a 'minor adverse' residual risk. For the operational and maintenance phase, the same risks would occur, although if the location of the cables was known fishers and vessel masters would know the likely locations to seek to avoid them. We agree.
- 19.3.92. We agree with the applicant that the most likely outcome would be a loss of gear and minor damage to the cable and at worst the loss of vessel and fatalities. The embedded mitigation, that is the cable protection, would seek to reduce the risk. However, overall, the residual risk would be 'minor adverse'.

ExA's consideration on snagging

- 19.3.93. The risk of snagging during construction and any protection being provided cannot readily be mitigated and thus could have a 'moderately severe' consequence. This would represent a 'minor adverse' residual risk. For the operational and maintenance phase, the same risks would occur, although if

the location of the cables was known fishers and vessel masters would know the likely locations to seek to avoid them.

- 19.3.94. We agree with the applicant that the most likely outcome would be a loss of gear and minor damage to the cable, at worst the loss of vessel and fatalities. The embedded mitigation, that is the cable protection, would seek to reduce the risk. However, overall, the residual risk would be 'minor adverse'.

Communications, radar and positioning systems

- 19.3.95. This has been discussed above in relation to the risk of allision. The only additional element relates to any potential effect on microwave communication systems, where the applicant considers there would be sufficient separation to any receiver. No party asserted differently.

ExA's consideration on communications, radar and position systems

- 19.3.96. In our view, the risks to communications, radar and positioning systems are as the applicant has assessed, that is 'negligible' leading to a 'minor adverse' not significant effect.

Searoom for decommissioning of existing oil and gas assets

- 19.3.97. Both Harbour and Spirit are concerned about the amount of searoom to allow them to facilitate the decommissioning of existing oil and gas assets. While accepting no WTG within 1.5nm of the either asset, Harbour was concerned about temporary infrastructure such as buoys.
- 19.3.98. Detailed discussions about the proposed PPs can be found in chapters 11 and 25. The following discussion relates to marine buffer zones until decommissioning is complete.
- 19.3.99. Spirit's own draft PPs [\[REP6-059\]](#) also have a 1.5nm marine buffer zone from the AP-1 and the DP-1 helideck, and also that no vessel to and from the proposed development would be permitted within 1nm of any of the helidecks or 500m of the legacy wells. No temporary surface infrastructure would be permitted within 1nm of any legacy well.
- 19.3.100. For the applicant its draft PPs [\[REP6-002\]](#), schedule 3, parts 2 and 3] give 1.5nm marine buffer zones from the edge of Calder (Harbour) and CPC (Spirit). This would prevent restrict the siting of WTGs, OSPs or temporary surface infrastructure. However, consent by Spirit or Harbour for temporary surface infrastructure can only be reasonably withheld.

ExA's consideration on searoom for decommissioning for existing oil and gas assets

- 19.3.101. The issue in relation to shipping and navigation therefore relates to temporary surface infrastructure and legacy wells. In our view the applicant's proposals are reasonable. They allow for co-existence and, once properly abandoned there should be no need to revisit legacy wells.

19.4. CONCLUSIONS

- 19.4.1. We are satisfied that the proposed development would not affect any recognised sea lanes essential to international navigation.
- 19.4.2. The proposed development would result in some additional distance to be travelled for ferries, but this would predominantly relate to one of the 'normal' weather routes between Liverpool and Belfast. The proposed development would not add to other effects on ferry routes which would be occasioned by other cumulative projects. During adverse weather, operators would have less options as to routing, but given the relative infrequency of this occurring, that few adverse weather routes utilise the application site, and that any additional risks would be policy compliant this does not add to the adverse effects identified.
- 19.4.3. There would be adverse effects on other shipping in the area which would have to travel further to avoid the proposed development and other cumulative projects. While ALARP there would be increases in risk of allision which updates to REWS would only partially mitigate. However, the risks would remain low.
- 19.4.4. As traffic would be required to use less searoom than at present, and traffic exiting the proposed development may not be identified due to masking, the proposed development would increase the risk of collision. However, the risks would remain low in absolute terms.
- 19.4.5. Consequently, there would be a higher risk of utilising SAR to respond to incidents. Nevertheless, particularly during the construction phase, as there would be more vessels in the vicinity these may be able to assist in an emergency. We therefore consider that risks to those using this area would not change overall.
- 19.4.6. In our view, the proposed development would not adversely affect major commercial navigation routes by causing appreciably longer transit times. Rather it would affect less strategically important shipping routes. In line with paragraph 2.8.330 of NPS EN-3 the SoS should take a pragmatic approach to considering proposals to minimise negative impacts.
- 19.4.7. There would be an increased risk of fishing gear snagging on exposed cables, particularly during the construction period between installation and protection being provided. These risks would be for only a relatively short period of time and would, in our view, therefore be low. Once operational, due to notification procedures the risks would be very low as those using the sea would be able to identify locations from records.
- 19.4.8. The proposed development would not interfere with microwave communications equipment. This is a neutral factor.
- 19.4.9. Through appropriate protective provisions, it would be possible to ensure that appropriate searoom was provided for the decommissioning of existing oil and gas installations.

- 19.4.10. Overall, we consider that the proposed development would have limited residual negative effect on shipping and navigation and this should be given a little negative weight against the granting of the DCO.
- 19.4.11. Therefore, the proposed development would comply with:
- article 22(4) of the United Nations Convention on the Law of the Sea (UNCLOS), section 36B of the Electricity Act 1989, paragraphs 2.8.326 and 2.8.327 of NPS EN-3 where there are requirements not to interfere with recognised sea lanes
 - paragraphs 5.5.33, 5.5.35 and 5.5.60 of NPS EN-1 which seek to ensure that proposals are compatible with military assets
 - paragraph 2.8.329 of NPS EN-3 which require the SoS to be satisfied that site selection has been made with a view to avoiding or minimising disruption or economic loss to the shipping and navigation industries with particular attention given to approaches to ports and strategic routes essential to regional, national, international trade, lifeline ferries and recreational users of the sea
 - paragraph 2.8.330 and footnote 75 of NPS EN-3 which indicates that for less strategically important shipping routes, such as vessels usually tending to transit point to point routes between ports (regional, national, and international) indicate the SoS should take a pragmatic approach to considering proposals to minimise negative impacts
 - paragraph 2.8.331 of NPS EN-3 which indicates that the Secretary of State should be satisfied that risk to navigational safety is ALARP.
 - paragraphs 2.8.332 and 2.8.333 of NPS EN-3 in that the location of the proposed development is in a location has little recreational craft, and thus minimises the effect on such
 - paragraphs 3.4.1 and 3.4.7 of the UK Marine Policy Statement that set out that shipping plays an important role in the UK economy and that decision makers should take into account and seek to minimise any negative impacts on shipping activity, and ensure compliance with international maritime law
 - policies NW-PS-2 and NW-PS-3 of the NWMP in that the proposed development would not encroach both International Maritime Organization routing or on high density navigation routes, strategically important navigation routes, or would pose a risk to the viability of passenger services

20. SOCIO-ECONOMICS, TOURISM AND RECREATION

20.1. INTRODUCTION

20.1.1. This chapter considers the effects of the proposed development in relation to the potential impacts on socio-economics, tourism and recreation.

20.1.2. Socio-economics, tourism and recreation were not identified as a principal issue in the Rule 6 letter [[PD-007](#), appendix C] however it was nevertheless a matter that the applicant assessed as part of the environmental statement (ES) and we have had regard to in our examination of the application.

20.1.3. In our consideration of this matter, we have had regard to:

- the requirements of the Overarching National Policy Statement for Energy (NPS EN-1) as set out in Section 5.13 and the National Policy Statement for Renewable Energy (NPS EN-3) as set out in Section 2.8
- the relevant policies of the North West Inshore and North West Offshore Marine Plan (NWMP) notably policies NW-EMP-1, NW-TR-1 NW-FISH-1 and NW-FISH-2
- any matters prescribed in relation to the development
- any other important and relevant matters

20.2. THE APPLICATION

20.2.1. The applicant's assessment in relation to impacts on socio-economics, tourism and recreation was principally set out in chapter 20 of the ES [[APP-057](#)] and was supported by a series of figures [[APP-141](#)]. Additional information to support the chapter was contained within appendix 20.1 which contains the Offshore Windfarm Economic Impact Assessment Methodology [[APP-086](#)].

20.2.2. The assessment was informed by, and took into account, the findings and conclusions of other relevant topics and chapters of the ES. Those chapters included:

- Chapters 13 'Commercial Fisheries' [[REP3-018](#)].
- Chapter 14 'Shipping and Navigation' [[REP3-20](#)].
- Chapter 17 'Infrastructure and Other Users' [[REP1-038](#)].
- Chapter 18 'Seascape Landscape and Visual Impact Assessment' [[REP3-026](#)].

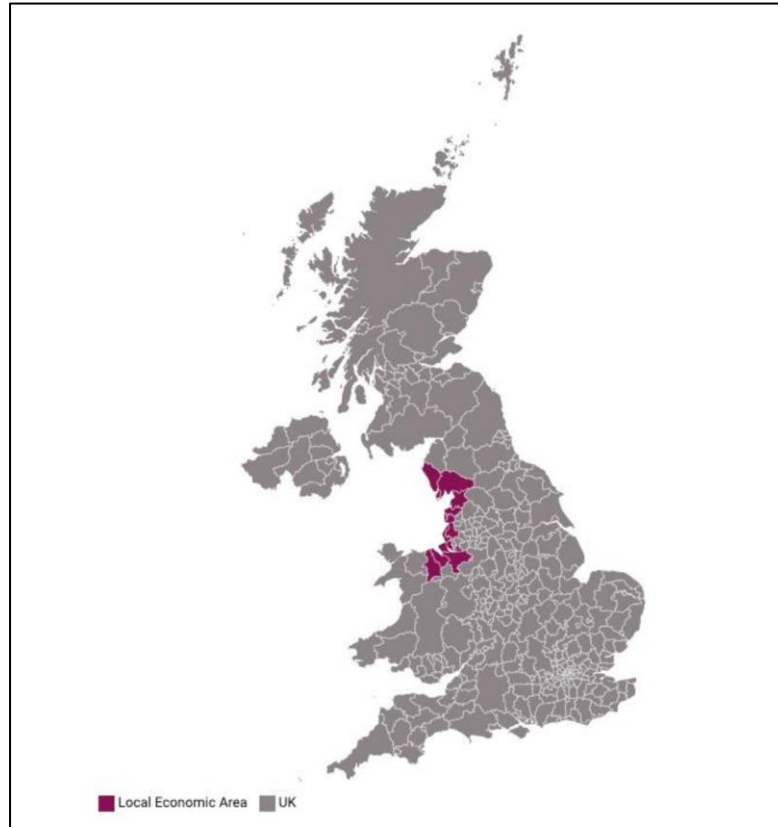
20.2.3. Other application documents that are relevant to this assessment include the Outline Skills and Employment Plan (oSEP) [[REP5-040](#)].

BASELINE

20.2.4. The study areas used for the purposes of the assessment were defined as being the Local Economic Area (LEA) and the United Kingdom (UK) and are illustrated in Figure 23 (taken from Plate 20.1 of chapter 20 of the ES [[APP-057](#)]). The LEA includes the following local authority areas: Liverpool,

Halton, Sefton, Wirral, Cumberland, Westmorland and Furness, Blackpool, Fylde, Lancaster, West Lancashire, Wyre, Cheshire West and Chester, Denbighshire and Flintshire.

Figure 23: Study area for socio-economics, tourism and recreation (extract of Plate 20.1 of [APP-057]).



- 20.2.5. No site-specific surveys were undertaken to inform the baseline assessment and instead the applicant drew upon a number of publicly available statistics and data sources [APP-057], table 20.4].
- 20.2.6. Analysis of the baseline data indicates that in 2021 the LEA had a population of over 2.6 million, accounting for 4% of the UK population. The total population of the LEA is expected to increase by 7.0% by 2043 which would be lower than the 8.5% increase expected across the UK.
- 20.2.7. The baseline data also showed that 62% of the population within the LEA are of working age (16-64 years old) which is slightly lower than the share accounted for by this demographic across the UK. The share of the working age population living in the LEA is expected to decrease to 57.2% by 2043 and the share of its population aged 65 and over is expected to increase from 21.4% to 26.3%. These changes are broadly in line with trends across the UK as a whole.
- 20.2.8. In terms of employment, human health and social work activities employed the largest proportion of workers (16%) within the LEA with wholesale and retail also being a relatively important employer (14%). Those employed in manufacturing and accommodation and food service activities (generally

associated with the tourism industry) each account for around 10% of the share of those employed in the LEA with the arts, entertainment and recreation sector (also closely linked with the tourism economy) employing around 3%. A full breakdown and comparison of the share of employment within each industry group for the LEA and UK was provided in table 20.17 of chapter 20 of the ES [\[APP-057\]](#).

- 20.2.9. The unemployment rate in the LEA (3%) was slightly lower than the UK rate of 4% and the median annual gross income of those working in the LEA was £26,467 which is again slightly lower than that across the UK (£27,901).

MITIGATION

- 20.2.10. The applicant incorporated what it describes as embedded mitigation features into the design of the proposed development to reduce the effects. For the purposes of this assessment the applicant relied upon the embedded mitigation measures that were identified and outlined for other topics and chapters of the ES. Those chapters are identified within paragraph 20.2.2 above. As the embedded mitigation measures and conclusions of the relevant chapters were relied upon in carrying out this assessment they are not repeated here.
- 20.2.11. The applicant also stated that it would seek to maximise the local benefits associated with the development for all stages of the development through its procurement process [\[APP-057\]](#), paragraph 20.24].
- 20.2.12. The applicant did not propose or deem any additional mitigation measures as necessary to reduce residual effects in relation to socio-economic, tourism and recreation impacts.
- 20.2.13. The design parameters (which form the embedded mitigation measures relied upon by the applicant in carrying out its assessment) would be secured as commitments through requirement (R) 2 of schedule 2 and condition 1 of the draft Deemed Marine Licence (dDML) in schedule 6 of the draft Development Consent Order (dDCO) [\[REP6-002\]](#). R12 of the dDCO requires a final Skills and Employment Plan (SEP) based on the oSEP to be submitted for approval by the relevant planning authority and to be implemented for the life of the development. The relevant planning authority would be that whose area the port or operations/ maintenance base is located, and this would be determined post-consent.

ASSESSMENT OF EFFECTS

- 20.2.14. The realistic worst-case scenarios used in undertaking the socio-economics, tourism and recreation assessment were set out in table 20.2 of chapter 20 of the ES [\[APP-057\]](#).
- 20.2.15. The applicant considered the potential impacts for all phases of the development to be the same. These were:
- increase in gross value added (GVA) – both in the LEA and UK
 - increase in employment – both in the LEA and UK

- community and social assets - potential impacts in the LEA on housing, educational and healthcare facilities
- tourism economy – impacts on the tourism economy in the LEA
- loss of, disruption to or pressure on recreational activities

20.2.16. A summary of the potential impacts and conclusions reached in terms of the effects for each identified impact are provided in table 20.49 of chapter 20 of the ES [\[APP-057\]](#).

Construction and decommissioning effects

Increase in gross value added and employment

20.2.17. During the construction phase, the applicant estimated that the proposed development would generate a total of £10 million GVA in the LEA and £259 million GVA across the UK [\[APP-057\]](#), table 20.27]. Short term employment opportunities would be created during the construction phase which, at its peak, would equate to around 70 jobs in the LEA and 1,320 jobs in the UK. Additional benefits include increased economic activity through the spending of those employed which could amount to an extra £4 million in the LEA and £101 million GVA across the UK.

20.2.18. For the decommissioning phase, the applicant stated that there was no substantial evidence upon which to assess the potential impacts of decommissioning activities as very few offshore wind developments have been decommissioned to date. However, the applicant anticipated that decommissioning the proposed development could require £58 million of expenditure [\[APP-057\]](#), paragraph 20.281] and that the impacts of decommissioning would be comparable to those identified for the construction phase. As the decommissioning port has yet to be determined the applicant did not attribute any economic activity, that is GVA or employment numbers, to the LEA but across the UK estimated decommissioning activity to generate £22 million GVA and 170 jobs [\[APP-057\]](#), paragraph 20.283 and table 20.42].

20.2.19. Whilst the proposed development would therefore provide benefits in terms of increases in GVA and employment, the applicant concluded that, when considered in the context of the GVA and employment levels within the LEA and UK as a whole, these benefits would equate to less than 0.1% in each case. Consequently, the applicant concluded that these effects would be 'negligible beneficial' and so not significant [\[APP-057\]](#), paragraphs 20.198 and 20.286].

20.2.20. In addition to potential benefits, the applicant also acknowledged that there could be adverse economic effects on commercial fisheries and shipping and navigation because of disruption to ferry services and reduced access to fishing grounds during the construction/ decommissioning phases. These impacts and effects (as discussed within chapters 8 and 11 of this report) would however be reduced through the implementation of the mitigation measures identified in respect of those matters. The applicant therefore concluded that any additive effects on the fishery and shipping operators

concerned would not result in a significant impact on socio-economic receptors [[APP-057](#), paragraph 20.202].

- 20.2.21. Overall, the applicant concluded that for the construction and decommissioning phases of the development the effects on GVA and employment would be 'negligible beneficial' and so not significant [[APP-057](#), table 20.49]. No additional mitigation measures were therefore deemed necessary by the applicant.

Community and social assets

- 20.2.22. New employment opportunities can lead to an influx of workers and increase the demand and pressure on local services such as housing, education and healthcare facilities. If those services are not able to adapt or cope, then this can result in reduced availability and access to services for the wider population. The applicant stated that the number of direct jobs expected to be created during the construction phase would equate to around 70 jobs and the baseline data suggested, on average, the population within the LEA would be expected to grow by 8,000 people a year. Whilst the applicant acknowledged that until the port location had been chosen the precise magnitude of effect and sensitivity of the population affected could differ to that used for the purposes of the assessment, given the potential number of jobs and change in demographics as a result of the development, the applicant concluded that the effects on community and social assets would be 'negligible adverse' which it considered is not significant [[APP-057](#), paragraph 20.221].
- 20.2.23. For the decommissioning phase the applicant did not identify the number of jobs that could potentially be created within the LEA [[APP-057](#), table 20.42]. Notwithstanding this, the applicant concluded that the impacts and effects would be similar to that for the construction phase and therefore concluded that the effects on demographics, accommodation availability and social infrastructure would also be 'negligible adverse' for the LEA and so not significant [[APP-057](#), paragraph 20.287].
- 20.2.24. Overall, the applicant concluded that for the construction and decommissioning phases of the development the effects on community and social assets would be 'negligible adverse' and so not significant [[APP-057](#), table 20.49]. No additional mitigation measures were therefore deemed necessary by the applicant.

Tourism economy

- 20.2.25. Activities and changes in the local environment as a result of construction and decommissioning works could potentially impact on the tourism economy. The applicant explained that the tourism economy across the LEA is varied and includes the city break attractions of Liverpool, the traditional seaside resorts of Blackpool and Southport and the countryside attractions of the Lake District.

- 20.2.26. As the location of the primary construction/ decommissioning port had not been identified, the applicant's assessment took into account the findings of chapters 14 'Shipping and navigation' [REP3-020] and 18 'Seascape, landscape and visual impact assessment' [REP3-026] which considered the impacts of the development on specific tourism and recreation assets. The applicant explained that those assessments had identified that visitors to key tourism receptors, including viewpoints from Blackpool and Southport, may be able to see and have their seaward views impacted by construction and decommissioning activities, however, the baseline evidence does not show a clear relationship between offshore wind developments and changes in visitor behaviour. A number of factors influence the reasons for people visiting the area such as shopping in Southport or the wide variety of attractions in Blackpool and therefore the applicant considered that the seaward views were not the primary determinant for the tourism economy. Furthermore, whilst some ferry routes would need to be re-routed because of the proposed development, the applicant considered changes to crossing times would be acceptable to most passengers.
- 20.2.27. Taking the above into account, the applicant concluded that for the construction and decommissioning phases of the development the effects on the tourism economy would be 'negligible adverse' for the LEA and so not significant [APP-057, table 20.49]. No additional mitigation measures were therefore deemed necessary by the applicant.

Loss of, disruption to or pressure on recreational activities

- 20.2.28. Given the location of the application site and the 30km separation distance to receptors in the LEA, the applicant concluded that there would be no disruption and impact on onshore recreational activities as a result of the construction/ decommissioning activities. The applicant explained that effects on marine users (including recreational sailors, divers and anglers) were considered as part of its assessment in chapter 17 of the ES (Infrastructure and Other Users) [REP1-038] and so not considered within this chapter [APP-057, paragraph 20.237].

Operation and maintenance effects

Increase in gross value added (GVA) and employment

- 20.2.29. During the operation and maintenance phase, economic activity would also lead to changes in GVA both in the LEA and across the UK. The applicant estimated that the average annual expenditure from the operation and maintenance of the proposed development would equate to £11 million in the LEA and £17 million across the UK [APP-057, paragraph 20.244]. The applicant stated that the proposed development would support jobs in businesses that support operational and maintenance activities and estimated these to be around 80 direct and indirect jobs in the LEA and 140 direct and indirect jobs across the UK. The applicant also explained that increases in economic activity would occur through the spending of those employed. This was estimated to generate another £2 million GVA in the

LEA and £4 million GVA across the UK which could support a further 30 jobs in the LEA and 50 jobs across the UK.

- 20.2.30. As with the findings for the construction/ decommissioning phases, the applicant explained that whilst the proposed development would therefore provide benefits in terms of increases in GVA and employment, when considered in the context of the GVA and employment levels within the LEA and UK as a whole, these benefits would equate to less than 0.1% in each case. Consequently, these effects were assessed as being 'negligible beneficial' and so not significant [[APP-057](#), paragraphs 20.253 and 20.264].
- 20.2.31. In terms of potential adverse effects, having regard to the findings of chapters 13 'Commercial fisheries' [[REP3-018](#)] and 14 'Shipping and navigation' [[REP3-020](#)] of the ES, the applicant stated that no significant adverse effects on commercial fisheries had been identified during the operation phase and that the changes to the routes of ferry services as a result of the proposed development would not have any significant effects on shipping and navigation. As a result, no significant effects on socio-economic receptors were identified [[APP-057](#), paragraph 20.256].
- 20.2.32. Overall, the applicant concluded that for the operation and maintenance phase of the development the effects on GVA and employment would be 'negligible beneficial' and so not significant [[APP-057](#), table 20.49]. No additional mitigation measures were therefore deemed necessary by the applicant.

Community and social assets

- 20.2.33. During the operation and maintenance phase the applicant estimated that around 80 direct and indirect jobs in the LEA would be created. Whilst increases in employment could lead to pressure on housing supply and community the applicant considered the level of employment to be 'negligible' when considered within the context of the wider LEA and therefore the effects on community and social assets would be 'negligible adverse' and so not significant [[APP-057](#), paragraph 20.68].

Tourism economy

- 20.2.34. As per the applicant's position regarding construction/ decommissioning effects, the applicant considered that changes in the surrounding environment as a result of the presence of the proposed development would not in and of itself result in changes to the tourism economy. This was because whilst the presence of the development may impact on seaward views and ferry service routes, the effect of these impacts on the tourism economy was assessed to be 'negligible adverse' and therefore not significant [[APP-057](#), paragraph 20.277].

Loss of, disruption to or pressure on recreational activities

- 20.2.35. Consistent with the conclusions reached in relation to construction/ decommissioning effects, given the location of the application site and the 30km separation distance to receptors in the LEA, the applicant concluded

that there would be no impacts to onshore recreational activities. The effects on marine users (including recreational sailors, divers and anglers) were considered by the applicant as part of its assessment in chapter 17 of the ES (Infrastructure and Other Users) [REP1-038] and so the applicant did not consider it necessary for these to be addressed within this chapter [APP-057, paragraph 20.278].

Cumulative effects

- 20.2.36. Table 20.43 of chapter 20 of the ES [APP-057] identified which project alone impacts the applicant considered had the potential for a cumulative effect on receptors and which were taken forward in the 'combined assessment'. For socio-economic, tourism and recreation this included impacts which related to increases in GVA and employment, impacts on community and social assets and the tourism economy.
- 20.2.37. Table 20.44 [APP-057] set out the various plans and projects considered for the 'all projects assessment' which included similar developments that are located off the coast of North West England, North Wales and the Isle of Man.
- 20.2.38. For the 'combined assessment' the applicant concluded that whilst there would be additive beneficial effects from both projects (as a result of an increase in investment in the economic study areas) the cumulative significance of these impacts would remain the same as that assessed by each project alone [APP-057, paragraph 20.303].
- 20.2.39. For the 'all projects assessment' the applicant identified both potential additive beneficial effects and adverse effects. In terms of beneficial effects, the applicant explained that increases in GVA and jobs could result due to multiple similar offshore projects potentially being constructed, operated and maintained in the area. The applicant explained that multiple projects could help to support or create new business ventures and stronger supply chains, support long term employment opportunities and the emergence of new skills required to service the developments over their lifetime. Whilst this could lead to pressure on social and community assets, long term opportunities could reduce the need for transient workers and taxes paid could help support the development of social and community assets in the LEA.
- 20.2.40. In terms of adverse effects, cumulative adverse effects on commercial fisheries and shipping and navigation were identified (as detailed within chapters 8 and 11 of this report). The applicant explained that whilst moderate (significant) cumulative effects on the UK dredge fishery, UK potting fleets and UK and Isle of Man dredge and demersal otter trawl fishery were identified, the applicant concluded that the individual contribution to these cumulative effects from the proposed development would be low. The applicant submitted that significant negative effects would therefore remain in the absence of the proposed development and that it is expected that other projects would adopt suitable mitigations to reduce any effects.

- 20.2.41. In terms of cumulative effects on shipping and navigation, no significant cumulative effects were identified by the applicant (as detailed in chapter ## of this report). The applicant considered that whilst there would be additive effects across the region the contribution from the proposed development to this cumulative effect would be low and as such would not result in significant effects. Similarly, in terms of cumulative effects on tourism, the applicant also concluded that the presence of multiple developments would not result in any significant adverse effects on tourism.
- 20.2.42. Overall, the applicant concluded that whilst there could be cumulative beneficial effects as a result of the different projects considered, at this stage, the significance of those effects would be difficult to determine given the projects are all at different stages. Therefore, a precautionary approach had been adopted and it concluded that any effects would be no greater than that which have been assessed for the project alone [[APP-057](#), paragraph 20.327].
- 20.2.43. In terms of cumulative adverse effects, whilst there would be cumulative adverse effects in relation to shipping and navigation and commercial fisheries, given the mitigations to be applied by the different projects, the applicant concluded that there would be no identified significant effects on economic receptors [[APP-057](#), paragraph 20.327].

20.3. ISSUES CONSIDERED DURING THE EXAMINATION

THE CASE FOR INTERESTED PARTIES

Lancashire County Council

- 20.3.1. Lancashire County Council (LCC) did not make a relevant representation (RR) but it did confirm that the applicant had complied with its duties under sections 42, 47 and 48 of the PA2008 [[AoC-009](#)]. The Consultation Report [[REP1-002](#)] demonstrates that it engaged with the applicant during the pre-application stages.
- 20.3.2. A signed statement of common ground (SoCG) was submitted into the examination at D5a [[REP5a-045](#)] which confirmed that all matters were agreed and that LCC did not wish to raise any concerns in regard to socio-economic effects.

Westmorland and Furness Council

- 20.3.3. Westmorland and Furness Council (WFC) [[RR-091](#)] stated that it was supportive of the principle of the proposed development and considered Barrow port as ideally located and equipped to support the proposed development. It added that there was already relevant local experience, expertise, skills, training and access to supply chains at the Port which could be further developed whilst delivering socio-economic benefits for the area. WFC also supported the applicant's oSEP [[REP5-040](#)] and would welcome the opportunity to work closely with the applicant to maximise benefits to the local area if Barrow port were to be identified for construction, operation or maintenance activities.

- 20.3.4. WFC added that it anticipated the proposed development would lead to a community benefits programme that it considered would focus on skills, training, supply chain engagement and community benefits that can help address specific local challenges associated with pockets of deprivation.
- 20.3.5. No further written representations or submissions were made by WFC during the examination.

Isle of Man Government Territorial Sea Committee

- 20.3.6. The Isle of Man Government Territorial Sea Committee (IoMTSC) [\[RR-031\]](#) queried the applicant's reference to a planning permission having been granted for the expansion of retail storage capacity on the island which it submitted would enable a greater amount of stock to be held and therefore help to address any potential supply chain issues as result of the impacts to ferry's transporting goods to the island. The IoMTSCs position was that the planning permission referenced was for minor change to an existing warehouse associated with a retailer's online delivery service and did not relate to overall storage provision for stock.
- 20.3.7. The applicant responded to the IoMTSC RR [\[PD1-011\]](#), row RR-031-12] commenting that whilst it noted the application did not increase retail storage capacity, its shipping and navigation assessment had demonstrated no significant effects to ferry services and associated disruption as a result of the proposed development. As a result, the assessment and conclusions of chapter 20 did not rely upon future plans that retailers might have for the expansion of warehouse or storage facilities in order to address any potential effects to supply chains or the delivery of critical supplies to the island.
- 20.3.8. We asked the IoMTSC for its views on the applicant's response [\[PD-011, 1SETR1\]](#). It confirmed it was content and that the response did not materially affect the assessment and conclusions of chapter 20 of the ES [\[REP3-106\]](#).
- 20.3.9. The signed SoCG [\[REP5a-037\]](#) confirmed the IoMTSC agreed that there would be minimal impacts on ferry routes and associated socio-economic effects from the project alone. It also confirmed that the IoMTSC agreed that whilst there could be potential effects and issues to supplies as a result of the cumulative impact of several projects, the contribution of the proposed development to any cumulative effects would be minimal.

Isle of Man Steam Packet Company

- 20.3.10. The Isle of Man Steam Packet Company (IoMSPC) [\[RR-032\]](#) stated that due consideration had been to the socio-economic impact of the proposed development to the Isle of Man as a result of ferry disruption. No further written representations were made by the IoMSPC but comments were provided via a SoCG between the IoMSPC and the applicant.
- 20.3.11. The final SoCG [\[REP6-023\]](#) confirmed the IoMSPC considered cumulative effects on shipping would arise as a result of the several offshore wind projects within the Irish Sea. The IoMSPC considered the presence of these

projects would result in narrower shipping corridors that could impact on normal and adverse weather routes taken by vessels which could lead to schedule disruption and an increased likelihood of cancellation and economic disruption of goods and services. The applicant's position was that the proposed development did not contribute to any significant cumulative impacts on IoMSPC routes, with those impacts being driven by the other projects. The IoMSPC disagreed but both parties confirmed that whilst this matter was not agreed the different positions did not result in a material impact to the assessment conclusions.

National Federation of Fishermen's Organisations and the Welsh Fisheries Association

- 20.3.12. As discussed within chapter 8, the National Federation of Fishermen's Organisations and the Welsh Fisheries Association (NFFO/ WFA) [\[RR-059\]](#) were concerned that the displacement of fishing activities would result in the loss of income and higher operating costs to affected fisheries.
- 20.3.13. A signed SoCG [\[REP5a-034\]](#) confirmed that whilst the NFFO/ WFA acknowledged the applicant's assessment had been undertaken within the framework of the EIA Regulations, they considered the methodology used across the industry should be developed in the future so as to more accurately capture the socio-economic and cultural effects of such proposals on commercial fishers. The NFFO/ WFA also maintained their view that the resumption of fishing post construction had yet to be proven. However, they supported the applicant's commitment to carry out post-construction monitoring.

UK Chamber of Shipping

- 20.3.14. The UK Chamber of Shipping (UKCoS) [\[RR-084\]](#) stated “...*the planning process and framework must support the wider shipping industry through site selection which avoids or minimises disruption or economic loss to the shipping and navigation industries, with particular regard to approaches to ports and to strategic routes essential to regional, national and international trade, lifeline ferries, as stated within Paragraph 2.8.328 of NPS EN-3*”.
- 20.3.15. No further evidence or written representations were made by the UKCoS however in the final SoCG [\[REP6-026\]](#) it is recorded that the UKCoS did not consider the socio-economic analysis undertaken to be of the detail and specificity expected, nor undertaken as outlined at Marine Navigation Engagement Forum (MNEF) meetings. It also commented that it would have expected to have seen analysis and methodology shared on the socio-economic and environmental impact of shipping and navigation due to deviation of routing on a cumulative basis akin to that carried out in the Greenhouse Gas Assessment Methodology for project vessels for the site alone. The UKCoS concluded that the absence of this has necessitated direct engagement with operators such as Stena Line on a bi-lateral basis and noted that commercial discussions were progressing but had not been agreed by the close of the examination. However, given the protective provisions in favour of Stena Line Limited contained within schedule 3 of the

dDCO (or potential replacement with a commercial agreement) the UKCoS considered this matter not to be material.

- 20.3.16. The applicant stated that the commercial effects on shipping and navigation receptors were not specifically included within chapter 20 of the ES and instead considered within chapter 14 which considered the wider effects on shipping and navigation. Indirect effects of shipping and navigation on economic receptors were, however, considered within chapter 20. The applicant concluded no significant effects were identified for the project alone effects and in terms of cumulative effects the only disrupted ferry route identified was to the Stena Line east of Calder route.

ISSUES

- 20.3.17. There was little discussion about the effects of the proposed development on socio-economics, tourism and recreation. Nevertheless, the important and relevant issues we have considered necessary for reporting are:

- effects on the economy, tourism and recreation and skills and employment opportunities/ benefits
- economic effects on commercial fisheries and shipping and navigation.

Effects on the economy, tourism and recreation and skills and employment opportunities/ benefits

- 20.3.18. As the proposed development is located entirely offshore there is no host authority and a decision on the location of the port that would serve the development has yet to be identified. Consequently, the applicant's assessment of the potential socio-economic impacts and effects of the proposed development were at a high level and as such similarly is the information regarding potential employment growth opportunities as set out in the oSEP [[REP5-040](#)].
- 20.3.19. We asked questions and sought clarification from the applicant on matters relating to its socio-economics assessment through written questions [[PD-011](#) and [PD-015](#)] and at issue specific hearing (ISH) 2) [[EV4-001](#), [EV4-008](#) and [EV4-009](#)]. This included asking the applicant whether increases in life expectancy and state pension age, along with the raising of the school leaving age from 16 to 18, had any implications for the baseline projections regarding the working age population within the LEA and consequently the accuracy of the assessments and conclusions within the ES. We also asked the applicant to clarify how it proposed to coordinate and work with other offshore wind projects to secure the potential cumulative employment and skills opportunities and benefits as identified and set out in the oSEP [[REP5-040](#)].
- 20.3.20. The applicant explained [[REP4-059](#), ID19 and [REP4-061](#), row 18] that it had used the Office for National Statistics definition of working age population for the purposes of the assessment which is defined as people aged 16 to 64. Whilst the applicant acknowledged that increase in school leaving age and number of people over 65 years old in employment could therefore affect the working age population, applicant stated that it did not consider such effects

to alter any of the conclusions within the ES and that they therefore remained valid. The applicant also explained [REP4-059, ID20] that the skills and employment benefits of the development are driven by the timing of other projects and the location of the port that would serve the development(s) and therefore until a port has been selected it would make coordination with other projects difficult. Nevertheless, the oSEP [REP5-040] includes information on the ways in which the applicant would seek to support local employment opportunities including, where possible, those with other offshore project promoters. WFC stated that it was supportive of the oSEP more generally and no specific comments or concerns were raised by it, or any other interested party, about its content.

ExA's considerations in relation to effects on the economy, tourism and recreation and skills and employment opportunities/ benefits

- 20.3.21. We are satisfied with the applicant's responses to our questions and matters in relation to socio-economic impacts including those which are not specifically discussed in this section. We concur with the applicant that the development would have positive benefits for both the national and local economy albeit these would not be significant. We also welcome the inclusion of the oSEP and encourage the applicant to work collaboratively with the appropriate relevant planning authority once the port location has been identified to ensure that the final oSEP, secured through R12 within schedule 2 of the dDCO [REP6-002] would be robust and maximise the benefits for the local economy.
- 20.3.22. We are also satisfied that the applicant has provided sufficient evidence to support its assessment of potential effects on tourism and to recreational users. We note that the available research indicates that there is little impact on tourism from renewable energy projects. We concur with the applicant that the presence of the wind farm would result in some harm to seaward views and whilst we consider that harm to be greater than that assessed by the applicant, as set out in chapter 18 of this report, that harm is unlikely to detract people from their overall enjoyment of onshore recreation activity or detract them from visiting the wider area.
- 20.3.23. Having considered the evidence before us, we are satisfied that the applicant's assessment and the proposed development is in accordance with the relevant policies contained within the NPS EN-1 and NPS EN-3. Moreover, the development would support a net increase in marine related employment and would not have a significant adverse effect and so also comply with NWMP policies NW-EMP-1, NW-TR-1, NW-FISH-1 and NW-FISH-2.

Economic effects of the proposed development on commercial fisheries and shipping and navigation

- 20.3.24. We note the concerns raised by the NFFO/ WFA regarding reduced access to fishing grounds and the potential economic impact this could have on fishing fleets that operate within the application site. However, as discussed within chapter 8 of this report, based on the evidence before us we are

satisfied that the project alone impacts of reduced access during the construction and decommissioning phases would be temporary and limited to the UK and Isle of Man potting fleets only. Although the NFFO/ WFA asserted the presence of the wind farm would deter fishers from returning once operational, we are not persuaded by this as no substantive evidence was put before us to support this position. Once operational, we see no reason why potting fisheries could not return within the footprint/ area of the application site and given the spacing between WTGs why other fisheries such as trawl and dredge fisheries would be prevented from fishing within the site should they wish to. In line with paragraph 5.13.10 of NPS EN-1, we have therefore given the views of the NFFO/ WFA regarding the potential economic effects of such reduced access limited weight in our consideration of this matter. As outlined within chapter 8, the oFLCP [REP5a-025] confirms that affected fleets would be eligible for disruption payments and further details for this would be set out in the final iteration of the FLCP which is secured by condition 9(1)(k) of the dDML within schedule 6 of the dDCO [REP6-002]. Consequently, whilst there could be periods of reduced access, we are satisfied that those restrictions would be for a temporary period and restricted to only certain phases of the development. We are also content that the FLCP and disruption payments would reduce the effects of any economic losses during those periods.

- 20.3.25. In terms of cumulative effects, whilst we accept that there would be potential moderate cumulative effects on UK dredge fishery, UK potting fleets and UK and Isle of Man dredge and demersal otter trawl fisheries, the contribution of this development to those effects would be limited given the size of the development. Also, whilst there could be effects during construction and decommissioning, again suitable mitigation through the FLCP would be in place for affected fishers during these phases and once operational there is nothing in the information before us that would, in our view, prevent fishers from returning to fish within the footprint/ area of the application site should they choose to. Therefore, we are satisfied that this mitigation would be sufficient to reduce the contributory effects that proposed development makes to these overall cumulative effects albeit we accept this would not remove all cumulative effects given the number of projects proposed.

ExA's considerations in on the economic effects of the proposed development on commercial fisheries and shipping and navigation

- 20.3.26. In our view the FLCP and mitigation measures contained within it are necessary to mitigate and address any adverse socio-economic impacts and therefore complies with NPS EN-1 paragraph 5.13.8. Through its implementation the development would help to support and maintain a sustainable fishing industry and mitigate the effects of reduced access for fishing activities and therefore would comply with the objectives of NW-FISH-1 and NW-FISH-2.
- 20.3.27. Finally, as discussed within chapter 19, whilst we agree there could be adverse economic effects on shipping and navigation because of the disruption to ferry services, the project alone effects would not be significant. In terms of cumulative adverse effects, whilst there would be cumulative

adverse effects, given the mitigations to be applied by the different offshore wind projects, we also concur with the applicant that any residual effects would also not be significant.

20.4. CONCLUSIONS

- 20.4.1. We are satisfied that the applicant has adequately described the socio-economic conditions in the area surrounding the proposed development and assessed the potential socio-economic impacts at a local, regional and national level. We are therefore content that the proposals comply with paragraph 5.13.2 to 5.13.6 of NPS EN-1.
- 20.4.2. We are satisfied that the applicant has carried out sufficient engagement with key stakeholders and its assessment demonstrates a good appreciation and understanding of the local and regional issues, opportunities and the effects of the proposed development.
- 20.4.3. We concur with the applicant's findings that the development would support a net increase in marine related employment and would not have a significant adverse effect on the tourism and recreation sector or fishing industry overall. We are also content that the applicant has considered the potential for disruption and economic loss to other commercial and recreational users of the sea and sought to minimise negative impacts and reduce risks to as low as reasonably practicable.
- 20.4.4. We concur with the applicant that the development would have positive benefits for both the national and local economy albeit these are not significant. We are also satisfied that appropriate measures have been identified and would be secured as part of the development to reduce the identified residual adverse effects and that the measures as set out in the final SEP would help to promote local employment and skills development opportunities.
- 20.4.5. Taking all the relevant documentation and evidence into account, we agree with the applicants' conclusions that the proposed development would have both 'negligible adverse' and 'negligible beneficial' effects for the different impacts assessed in relation to socio-economics, tourism and recreation.
- 20.4.6. We are content that the proposals comply with paragraphs 5.13.2 to 5.13.6 and 5.13.8 and 5.3.12 of NPS EN-1 as well as paragraphs 2.8.178, 2.8.322 and 2.8.328 of NPS EN-3. Because the benefits of the proposed development are equally weighted with identified harm, we consider there are no residual effects or issues which affect the planning balance. Therefore, when considered together, we conclude that the effects of the proposed development on socio-economics, tourism and recreation as a whole should be afforded neutral weight in the planning balance.
- 20.4.7. In our view, the applicant's proposals and the proposed development would:
- comply with paragraph 5.13.2 to 5.13.6 of NPS EN-1 as the ES includes a description of the socio-economic conditions in the area surrounding

the proposed development and contains an assessment of the potential socio-economic impacts in both the LEA and wider regional area. This includes a consideration of the potential for the proposed development to create jobs and training opportunities, its effects on demographics and resultant demands on local services and facilities, effects on tourism and other users of the area as well as cumulative effects given the number of similar offshore wind projects that are currently being considered and promoted within the same area/ timeframe

- comply with paragraph 5.13.3 of NPS EN-1 as we are satisfied that the applicant has carried sufficient engagement with key stakeholders during the pre-application stage which has enabled it to have a good appreciation and understanding of the local and regional issues and opportunities and the effects of the proposed development
- comply with paragraph 5.13.8 of NPS EN-1 as mitigation measures have been identified and secured as part of the development to mitigate any adverse socio-economic impacts of the development
- comply with paragraph 5.13.12 of NPS EN-1 as the oSEP and R12 of the recommended DCO (rDCO) would secure a final SEP which would set out the arrangements to promote local employment and skills development opportunities
- comply with paragraphs 2.8.178, 2.8.322 and 2.8.328 of NPS EN-3 insofar as the applicant has considered the potential for disruption and economic loss to other commercial and recreational users of the sea and sought to minimise negative impacts and reduce risks to as low as reasonably practicable.
- comply with policies NW-EMP-1, NW-TR-1, NW-FISH-1 and NW-FISH-2 of the NWMP in that the development would support a net increase in marine related employment and would not have a significant adverse effect on the tourism and recreation sector or fishing industry overall

21. TRAFFIC AND TRANSPORT

21.1. INTRODUCTION

21.1.1. This chapter deals with the effects of the construction, operation and maintenance and decommissioning of the proposed development in relation to traffic and transport.

21.1.2. In our consideration of traffic and transport, we have had regard to:

- the requirements of the Overarching National Policy Statement for Energy (NPS EN-1), and in particular section 5.14
- any matters prescribed in relation to the development
- any other important and relevant matters.

21.2. THE APPLICATION

21.2.1. The applicant's case in relation to traffic and transport was set out in chapter 22 of the environmental statement (ES) [\[APP-059\]](#). This was supported by an 'Outline Port Access and Transport Plan' (oPATP) [\[APP-151\]](#).

21.2.2. The scoping opinion [\[APP-143\]](#) set out *"the Inspectorate considers that it is unlikely that the volume of traffic movements arising from the Proposed Development would result in significant onshore traffic, air quality and/or noise effects but does not have sufficient information to exclude this possibility. The ES should confirm that the anticipated road vehicle movements are below the screening values in relevant guidance for these aspects, and if values are exceeded then an assessment of [likely significant effects] LSE should be provided"*. The applicant, therefore, provided further information as follows.

21.2.3. The applicant did not identify preferred base port(s) for offshore construction, operation and maintenance, and decommissioning of the proposed development. This is because it indicated that a decision on this would be made post-consent. Furthermore, the applicant maintained any attempt to assume or identify a potential port location, whether in the United Kingdom or elsewhere, could compromise commercial negotiations.

21.2.4. However, the applicant has identified the following approach to the selection of port(s) for the respective phases:

- The applicant would tender the construction and decommissioning operations to deliver the required elements of the proposed development. This would include identifying appropriate ports.
- For operation and maintenance, the applicant proposes to review the most suitable port(s). This would identify whether the port(s) have existing permissions, and if not, then appropriate permissions would be sought.

21.2.5. The applicant considered that, as it has not confirmed which port(s) would be used, it would not be possible to meaningfully assess traffic and transport impacts.

- 21.2.6. To secure the relevant assessment of any potential terrestrial traffic and transport effects, the applicant committed to developing a PATP post-consent in the event that the chosen port(s), in England or Wales only, do not have sufficient extant permissions.
- 21.2.7. This would be secured through requirement (R) 11 in the draft Development Consent Order (dDCO) [REP6-002]. R11 requires a PATP to be approved by the local highway authority, in consultation with the local planning authority, which would require the submission and approval of a PATP for the onshore port-related traffic to and from the port. Once approved, the PATP would have to be implemented.
- 21.2.8. The final PATP, if one is required, would be specific to the port(s) selected and would provide details of existing port permissions, forecast construction and operational traffic demand and related effects.

21.3. ISSUES CONSIDERED DURING THE EXAMINATION

THE CASE FOR INTERESTED PARTIES

Lancashire County Council

- 21.3.1. The statement of common ground [REP5a-045] with Lancashire County Council indicates that Lancashire County Council *“would like to retain engagement with the Applicant outside of the DCO examination process in regard to potential traffic impacts including any associated traffic management plans, and port selection timescales. On the assumption the port will be within Lancashire, the exact details of port facilities, development requirements and suitability of the access route (which will use primary A roads, strategic roads or roads designated as abnormal load routes, unless agreed otherwise with LCC) and will be subject of Requirements to the DCO”*.

Westmorland and Furness Council

- 21.3.2. Westmorland and Furness Council [RR-091] noted the connectedness of Barrow Port to the motorway network via a designated heavy/ abnormal route, allowing for road and rail access to large supply chains in the marine and energy sectors. It also noted that the A595 coast road linking Barrow to Millom and Whitehaven is set to be improved, with construction of the Grizebeck bypass starting in Autumn 2024.
- 21.3.3. The Council noted and welcomed the applicant’s commitment to the PATP. It noted that in the past traffic associated with construction using Barrow port had not significantly impacted Westmorland and Furness. However, further effects would need to be closely monitored including integrating within existing port activities.

ISSUES

21.3.4. Due to paucity of information submitted, our questions on the issue of port traffic effects concentrated on whether sufficient information had been provided to ensure that appropriate provision would be made in due course.

21.3.5. In light of this, we consider that for traffic and transport the main important and relevant issues for reporting are:

- whether there is compliance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 Regulations (the EIA Regulations)
- whether likely significant effects would be captured and, where appropriate, mitigated

Compliance with EIA regulations

21.3.6. In our ExQ1TT1 [\[PD-011\]](#) we asked the applicant how it considered that not identifying the port(s) until post-consent, would allow it to comply with schedule 4 of the EIA Regulations which require a description of the 'whole development'.

21.3.7. In its response [\[REP3-068\]](#) the applicant pointed out that it was not seeking permission for a base port for the construction or operation of the proposed development. Sections 22.4.1 and 22.4.2 of chapter 22 of the ES [\[APP-059\]](#) noted two options; either the port(s) would have the relevant permissions, in which case this would form part of the baseline thus avoiding any new or cumulative effects, or new permissions would be required, in which case they would need to be obtained and, as appropriate, environmental effects assessed.

ExA's consideration on compliance with EIA Regulations

21.3.8. As the applicant has not identified which port(s) would be used for construction, operation and maintenance, or decommissioning it is not possible to know what traffic and transport effects it may have. However, we accept that by either using a port with existing appropriate consents, or ensuring it obtained such consents before use, would ensure that the appropriate effects would be part of the historic baseline, or have been or would be assessed.

Whether appropriate effects would be captured and mitigated

21.3.9. As originally drafted the requirement for the PATP [\[APP-012\]](#), R9] only occurred where turbine generators and/ or foundations were to be transported over land. This was amended following discussion at issue specific hearing 2 so that in the final draft dDCO [\[REP6-002\]](#) this also included offshore substation platforms and scour protection for foundations.

21.3.10. The oPATP was also amended [\[REP5-032\]](#) in response to our ExQ1TT3 [\[PD-011\]](#) to include consideration of effects where they might cross administrative or operational boundaries, for example to include National Highways or Highways Wales.

ExA's consideration as to whether likely significant effects would be captured

- 21.3.11. By widening the components that would require further assessment, the requirement would include those elements which would more possibly result in significant effects both in highway safety and environmental terms. We are therefore satisfied that this would now adequately cover these matters.
- 21.3.12. Similarly, the widening of those authorities, from which approval would be needed for the final PATP, to include strategic or adjacent highway authorities, as well as consultation to the relevant local planning authorities, would ensure that the effects of traffic and transport would be mitigated if necessary.

21.4. CONCLUSIONS

- 21.4.1. We are satisfied that, to the extent assessed, the proposed development would ensure that it did not have any adverse effects on onshore traffic and transport interests. As such we consider this is a neutral issue for the final planning balance.
- 21.4.2. As such the proposed development would comply with:
- paragraphs 5.14.18 to 5.14.21 of NPS EN-1 which note for decision making that the SoS should ensure that the applicant has mitigated the effects of a proposed development on transport infrastructure, including requirements where necessary.

22. HABITATS REGULATIONS ASSESSMENT

22.1. INTRODUCTION

- 22.1.1. Our detailed analysis and conclusions in relation to the Habitats Regulations Assessment (HRA) are set out at appendix C to this report. These will help the Secretary of State (SoS) to perform the duties of Competent Authority under the Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (collectively known as 'The Habitats Regulations').
- 22.1.2. The proposed development is described in chapter 2 of this report and the spatial relationship between the Order Limits and European sites is shown on Figures 5.1, 6.1, 7.1 and 8.2 of the applicant's HRA Screening Report [\[REP3-006\]](#). The proposed development was identified as having likely significant effects (LSE) on European sites. It is not directly connected to the management of a European site and therefore, the SoS should undertake an appropriate assessment (AA).
- 22.1.3. The applicant's Report to Inform Appropriate Assessment (RIAA) [\[REP5a-009\]](#) further assessed the European sites and qualifying features identified as having LSE to determine if they could be subject to adverse effects on integrity (AEoI). Detailed assessments were provided by receptor group: Annex I habitats (offshore and coastal), Annex II migratory fish species, Annex II marine mammals and offshore ornithological qualifying features. The RIAA identified relevant mitigation measures (which are summarised in appendix C of this Report) and concluded no AEoI.
- 22.1.4. We produced a Report on the Implications for European Sites (RIES) [\[PD-017\]](#), which compiled relevant information in the examination up to Deadline (D) 5 (11 March 2025). It set out our understanding and the position of interested parties (IPs) in relation to the effects of the proposed development on European sites at that point in time. Consultation on the RIES took place between 25 March 2025 and 15 April 2025 and the responses to the RIES, and other examination submissions helped inform our consideration of HRA matters.
- 22.1.5. The key issues considered during the examination were:
- for Special Areas of Conservation (SACs) with Annex II marine mammals, the in-combination assessment, particularly for elevated underwater sound and measures to mitigate construction effects; and
 - the applicant's offshore ornithology assessment, including methodology concerns related to displacement, collision risk, separate collision and displacement impacts, apportionment, and in-combination assessment.
- 22.1.6. Further information can be found within appendix C of this report

22.2. SUMMARY OF ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

- 22.2.1. We are satisfied that the correct European sites and qualifying features were identified in the applicant's HRA Screening Report [\[REP3-006\]](#), and that the assessment of alone and in-combination LSE considered all relevant potential impact pathways. We have concluded that LSEs exist for 86 European sites from the proposed development alone and in combination with other plans or projects; these are identified in table 2.3 of the RIES [\[PD-017\]](#).

22.3. SUMMARY OF FINDINGS IN RELATION TO ADVERSE EFFECTS ON INTEGRITY

- 22.3.1. For the European sites listed in Table HRA 2 of appendix C of this report, including all sites with Annex I habitat and Annex II migratory fish qualifying features, the RIAA [\[REP5a-009\]](#) concluded no AEol from the proposed development alone or in combination with other projects and plans. The Appropriate Nature Conservation Bodies (ANCBs) [\[RR-061\]](#), [\[REP6-051\]](#), [\[REP1-099\]](#), [\[REP6-053\]](#), [\[REP6-044\]](#) agreed with these conclusions (as related to European sites for which they were responsible).
- 22.3.2. Initially the ANCBs were unable to agree that there would be no AEol on several European sites due to factors including errors, omissions and different methodological approaches to assessment. However, following submissions during the course of the examination, the Joint Nature Conservation Committee (JNCC) [\[REP3-082\]](#) and Natural Resources Wales Advisory (NRW (A)) [\[REP6-053\]](#) confirmed that, in respect of the European sites for which they are responsible, the applicant's conclusions of no AEol as a result of the proposed development alone or in combination with other plans or projects were agreed. NE [\[REP6-051\]](#) confirmed similarly for SACs designated for Annex II marine mammals in English waters.
- 22.3.3. On 23 September 2024 we wrote to NatureScot and the Department of Agriculture, Environment and Rural Affairs (DAERA) of Northern Ireland [\[PD-009\]](#) requesting their participation in the examination. NatureScot [\[REP2-039\]](#) provided comments on HRA matters, however noted that it was unable to participate in the examination further. NatureScot [\[REP2-039\]](#) raised concerns in relation to the assessment of Manx shearwater feature of the Rum Special Protection Area (SPA); however no further representations on this from NatureScot detailing views were received. In our RIES [\[PD-017\]](#) we requested NatureScot and DAERA to provide clear positions on agreement or otherwise with the applicant's conclusions in relation to AEol, but neither organisation responded by the close of examination on these matters.
- 22.3.4. In respect of the European sites for which agreement was not reached by the close of examination with some IPs, we are satisfied that there would be no AEol and do not agree with the RSPB's [\[REP5a-033\]](#) position that AEol cannot be ruled out for:

- Manx shearwater at Copeland Islands SPA, Aberdaron Coast and Bardsey Island SPA, Skomer, Skokholm and the Seas off Pembrokeshire SPA, Rum SPA, Isles of Scilly SPA, St Kilda SPA (in-combination)
- Greater black-backed gull (GBBG) – Isles of Scilly SPA (in-combination)

22.3.5. We agree with NE and the RSPB that it is not possible to rule out AEol on the following:

- Lesser black-backed gull (LBBG) – Morecambe Bay Duddon Estuary (MBDE) SPA and Ramsar site (in-combination)
- LBBG – Ribble and Alt Estuary (RAE) SPA and Ramsar site (in-combination)
- Red-throated diver (RTD) – Liverpool Bay/ Bae Lerpwl SPA (Liverpool Bay SPA) (project alone)

22.3.6. In relation to RTD, we identified the potential for further mitigation through a 7.5 kilometre (km) buffer from the ‘original’ boundary of the Liverpool Bay SPA and in chapter 23 have discussed this further in terms of potential implementation options. This matter, due to timing of representations, was not fully explored before the close of the examination. In line with the application of the mitigation hierarchy, we note potential for the exploration of further mitigation to enable AEol to be ruled out at Liverpool Bay SPA for the RTD qualifying feature through the application of a no-development buffer zone from the SPA.

22.3.7. The applicant has provided ‘without prejudice’ compensatory measures (CM) for LBBG of the MBDE SPA and Ramsar site, and the RAE SPA and Ramsar site, and RTD of the Liverpool Bay SPA. These measures would be secured through schedule 7 of the draft Development Consent Order (dDCO) [[REP6-002](#)], with Part 1 relating to LBBG and Part 2 relating to RTD. Schedule 7 also and alternatively provides for CM to be delivered through contributions to a strategic compensation fund (to be established by the Department for Environment, Food and Rural Affairs or a government body).

22.4. CONCLUSIONS

22.4.1. We are satisfied that all relevant European sites and qualifying features were identified for assessment, and that all potential impacts have been assessed. We are also satisfied that all relevant projects for the in-combination assessment that could give rise to significant effects were identified and assessed.

22.4.2. Our findings are that, subject to the mitigation measures to be secured in the recommended DCO (rDCO), AEol from the proposed development when considered alone or in combination with other plans or projects can be excluded for the European sites listed in table 2.3 of the RIES, aside from LBBG of the MBDE SPA and Ramsar site, and the RAE SPA and Ramsar site. For the reasons set out above regarding the potential for exploration of further mitigation in the form of a no development buffer zone, we consider that it is possible AEol could be ruled out for the RTD qualifying feature of Liverpool Bay SPA.

- 22.4.3. For these sites and features, the applicant has provided ‘without prejudice’ CM, which we have examined and sought views on from the relevant ANCBs. We consider that there is sufficient information for the SoS to establish that appropriate CM can be implemented, to fulfil their duty under the requirements of The Habitats Regulations. We conclude that the overall package of proposed CM is feasible, appropriate and would ultimately ensure the overall coherence of the United Kingdom National Site Network.
- 22.4.4. The applicant has submitted a ‘without prejudice’ derogation case for LBBG, which includes an assessment of alternative solutions, the applicant’s imperative reasons of overriding public interest (IRoPI) case, and proposed CM. These matters were considered during examination. Given the evidence available, it is our opinion that there are no alternative solutions that would result in a lesser adverse effect on LBBG and that IRoPI for the proposed development could be established. The findings of the examination are that the CM package as proposed is feasible and appropriate and is adequately secured in the rDCO.
- 22.4.5. Having noted that the potential for further mitigation for RTD has not been fully explored due to timing of representations, we have acknowledged and examined the ‘without prejudice’ derogation case for RTD. Should the SoS determine that AEoI cannot be excluded, and that no feasible alternative solution exists that would represent a lesser adverse effect to RTD than the proposed development, we recommend, based on the evidence available, that IRoPI for the proposed development could be established and that the CM package as proposed is feasible and appropriate and adequately secured in the rDCO.
- 22.4.6. We consider that there is sufficient information before the SoS to enable them to undertake an AA and to apply the derogation tests of The Habitats Regulations of alternative solutions, IRoPI, and CMs to fulfil their duty under the requirements of The Habitats Regulations.
- 22.4.7. We consider that there is sufficient information before the SoS to enable them to understand the potential for adverse effects on European sites from the proposed development alone or in combination with other plans or projects. However, given the amount of HRA information submitted by the applicant, JNCC and NRW(A) following publication of the RIES, the SoS may wish to undertake further consultation to fulfil the duties under Regulation 28(4) of The Conservation of Offshore Marine Habitats and Species Regulations 2017.

23. CONCLUSION ON THE CASE FOR DEVELOPMENT CONSENT

23.1. INTRODUCTION

- 23.1.1. This section sets out our reasoning and conclusions on the planning merits of the proposed development and whether there is a case for the making of a development consent order (DCO) for the proposed development. It does this in the light of the legal and policy context, which is set out in chapter 2 of this report and the planning issues that arose from the application and during the examination set out in chapters 4 to 21. Chapter 22 and appendix C address Habitats Regulations Assessment (HRA) considerations.
- 23.1.2. We have taken account of all the relevant representations, written representations, statements of common ground, and the responses to our written questions, Rule 9 and 17 letters and other submissions during the examination together with the matters raised within the hearings and the matters we saw during our site inspections.
- 23.1.3. Matters in relation to land and lease issues, human rights and the public sector equality duty are discussed in chapter 24. Chapter 25 addresses the implications of the matters arising for the DCO and finally chapter 26 summarises all relevant considerations and sets out our recommendation as examining authority (ExA) to the Secretary of State (SoS).
- 23.1.4. This chapter also reviews the decision-making process set out in Planning Act 2008 (PA2008) section (s) 104 (in relation to applications where there are designated National Policy Statements (NPSs) in force) and ensures that the relevant tests under that section have been applied before a final conclusion is drawn.

23.2. SUMMARY OF THE MAIN PLANNING ISSUES

THE PRINCIPLE OF DEVELOPMENT, NEED AND ALTERNATIVES

- 23.2.1. We are of the view that for the purposes of s104 of the PA2008 that the relevant national policy documents are:
- Overarching National Policy Statement for Energy (NPS EN-1)
 - National Policy Statement for Renewable Energy Infrastructure (NPS EN-3)
 - National Policy Statement for Electricity Networks Infrastructure (NPS EN-5)
- 23.2.2. We are satisfied that there is a clear and compelling need for the proposed development and therefore, in line with paragraph 4.1.3 of NPS EN-1, the SoS must start with a presumption in favour of granting consent. We are content that the needs case has been met and therefore in line with paragraph 3.2.7 of NPS EN-1 we afford this very great positive weight in the planning balance.

- 23.2.3. We are also content that the applicant has explored reasonable alternatives in terms of both the location and extent of the offshore array area within the constraints imposed by The Crown Estate's (TCE) leasing process. We are also satisfied that options for coordination have been considered and evaluated appropriately and that the other requirements of NPS EN-1, NPS EN-3 and NPS EN-5 have been met, as cited in paragraph 4.1.1 of chapter 4 of this report.

BENTHIC ECOLOGY

- 23.2.4. We are satisfied that the applicant has consulted appropriately with relevant statutory consultees and other stakeholders on the assessment methodologies and baseline data collection and has taken into account views on the potential avoidance, mitigation and compensation options which should be undertaken.
- 23.2.5. We are satisfied that the applicant has undertaken suitable assessments to identify potential impacts and effects on benthic ecology receptors which we consider accords with the requirements of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations). This includes a consideration of the potential effects as identified within paragraph 2.8.126 of NPS EN-3 such as the loss of habitat and disturbance, impacts as a result of increased sediment loads, impacts and measures to reduce the level of electromagnetic field effects (NPS EN-5, paragraph 2.11.13) and impacts on protected sites as well the risks relating to invasive non-native species.
- 23.2.6. Based on the evidence before us we are satisfied that the proposed development would not have any direct or indirect significant effects on benthic features of any Marine Conservation Zone (MCZ).
- 23.2.7. We are satisfied that through the application and implementation of the embedded mitigation measures incorporated into the design of the development and/ or secured through requirements and conditions imposed on the draft DCO (dDCO), we concur with the applicant that all residual effects on benthic ecology receptors would range from 'negligible adverse' to 'minor adverse' and not significant in environmental impact assessment (EIA) terms.
- 23.2.8. In terms of cumulative effects, we agree with the applicant that the effects for all impacts assessed would be no greater than those which have been concluded for the project alone.
- 23.2.9. Taking all the relevant documentation and evidence into account, we have no reason to disagree with the applicant's conclusions regarding the residual effects of the proposed development on benthic ecology as a whole. We conclude that the effects of the proposed development on benthic ecology receptors should be afforded a little negative weight in the planning balance.

CIVIL AND MILITARY AVIATION AND RADAR

- 23.2.10. We are satisfied that the applicant has carried out an adequate assessment of the proposed development and its potential effects on the performance of civil or military aviation communications, navigation and surveillance, meteorological radars and/ or other defence assets. The applicant has also carried out suitable consultation with relevant stakeholders at the pre-application stage and engaged and worked collaboratively with aviation stakeholders and aerodrome operators during the examination to allow for co-existence and ensure that neither is unduly compromised. We are content that the proposed development would therefore comply with MGN654 and paragraphs 5.5.5, 5.5.37 to 5.5.42 and 5.5.53 of NPS EN-1 and paragraphs 2.8.48 and 2.8.50 of NPS EN-3.
- 23.2.11. We are satisfied the proposed development has been designed, where possible, to minimise adverse impacts on the operation and safety of aerodromes. Where effects have been identified, suitable mitigation solutions have been identified to address these which include changes to operational procedures and radar mitigation solutions that are realistically achievable and deliverable within the time limit for implementation of the DCO. We are therefore content that the proposed development would comply with the requirements of paragraphs 5.5.43 and 5.5.49 to 5.5.60 of NPS EN-1 and paragraph 2.11.14 of NPS EN-5.
- 23.2.12. We concur with the applicant's conclusions that during the construction and decommissioning phases, most effects would result in 'no change' or be 'not significant' when considered against the baseline environment and therefore not significant in EIA terms. We also agree that whilst the effects arising from the creation of an aviation obstacle would be 'moderate significant' and significant in EIA terms, we are satisfied that through the implementation of additional mitigation, the residual effect would be reduced to 'not significant' and therefore not considered significant in EIA terms.
- 23.2.13. We also concur with the applicant's conclusions that, during the operation and maintenance phase, the presence of infrastructure and the operation of WTGs during the life of the proposed development would result in 'major significant' and 'moderate significant' effects which is significant in EIA terms. However, we also agree that through the implementation of additional mitigation, the residual effects would be reduced to 'not significant' and would not be significant in EIA terms and for all other impacts, agree the effects would be 'not significant' when considered against the baseline environment and so not significant in EIA terms.
- 23.2.14. In terms of cumulative effects, we concur that the effects for all impacts assessed would be no greater than those which have been concluded for the project alone. Therefore, the residual effects would not be significant in EIA terms.
- 23.2.15. We therefore conclude that the effects of the proposed development on civil and military aviation and radar as a whole should be afforded a little negative weight in the planning balance.

CLIMATE CHANGE AND GREENHOUSE GAS ASSESSMENT

Climate change resilience

- 23.2.16. We are satisfied that the proposed development has been appropriately designed to deal with the effects of climate change in the vicinity having used recent Intergovernmental Panel on Climate Change projections. It would therefore comply with section 4.10 of NPS EN-1, section 2.4 of NPS EN-3, section 2.3 of NPS EN-5 and Policy NW-CC-2 in the North West Inshore and North West Offshore Marline Plan (NWMP) which deal with climate change adaptation and resilience. This is a neutral factor in the planning balance.

Greenhouse gas assessment

- 23.2.17. We conclude that the proposed development has been appropriately assessed and would result in significant and substantial benefits in reductions in greenhouse gas (GHG) emissions when compared with alternative sources of electricity supply involving the use of carbon based fuels. We consider that these should be given great weight in favour of the proposed development as part of the overall weight in the needs case considered in paragraphs 23.2.2 and 23.2.3.
- 23.2.18. While there would be increases in GHG emissions from additional journeys around the application site rather than through it, particularly for ferries, and there would be loss of savings in GHG due to wake loss effects on existing offshore wind farms (OWFs) in the eastern Irish Sea, we are satisfied that these do not materially result in a reduction in the benefits identified.
- 23.2.19. Looking at the proposal in the round, we conclude that the applicant has provided a GHG assessment, dealing with the whole life of the project and setting out various matters it should include. We are also satisfied, in line with paragraph 5.3.8 of NPS EN-1 that the applicant has taken all reasonable steps to reduce GHG during both the construction and decommissioning stages. There are no matters that of themselves relating to climate change are positive or negative and therefore this is a neutral factor in the overall balance.

COMMERCIAL FISHERIES

- 23.2.20. We are satisfied that the applicant has carried out appropriate consultation with statutory advisors, representatives of the fishing industry and appropriate fisheries groups in order to identify impacts to support its assessment on commercial fisheries. We are content that the assessment undertaken by the applicant contains robust baseline data and detailed surveys of the effects on fish stocks of commercial interest. The applicant has demonstrated that due regard to the impact of the proposed development on fishing activities was given as part of its site selection process. The proposed development would not be in an important fishing ground and nor would it significantly impede fishing activities. We are therefore content that the proposed development complies with paragraphs 4.5.8 and 4.5.9 of NPS EN-1 and paragraphs 2.8.153 to 2.8.155, 2.8.157 to 2.8.160, 2.8.163 and 2.8.164 and 2.8.318 to 2.8.322 of NPS EN-3.

- 23.2.21. We are satisfied that the mitigation measures incorporated into the design of the development, which would be secured as part of the DCO, would avoid, minimise and mitigate the impacts of the development on commercial fisheries. To further reduce residual effects the applicant has committed to carrying out monitoring and mitigation measures within the outline FLCP [\[REP5a-025\]](#) secured by condition 9(1)(k) within schedule 6 of the dDCO [\[REP6-002\]](#). The applicant has also committed to considering opportunities and enhancement measures for commercial fisheries post consent. We are therefore content that the proposed development complies with paragraphs 2.8.48, 2.8.250, 2.8.251 and 2.8.323 of NPS EN-3.
- 23.2.22. We concur with the applicant's conclusions that, with the exception of effects on UK and Isle of Man potting fleets, during the construction and decommissioning phases all residual effects would be 'minor adverse' or lower in terms of their significance and not significant. For those fleets where impacts have been found to have a 'moderate adverse' effect, we are satisfied that through the implementation of additional mitigation, the residual effect would be reduced to 'minor adverse' and not significant in EIA terms.
- 23.2.23. Taking all the relevant documentation and evidence into account, we have no reason to disagree with the applicant's conclusions regarding the residual effects of the proposed development during the construction and decommissioning phases. We therefore consider and conclude that these effects should be afforded a neutral weight in the planning balance.
- 23.2.24. We concur with the applicant's conclusions that during the operation and maintenance phase, all residual effects on all fleets would be 'minor adverse' or lower in terms of their significance and not significant in EIA terms. Overall, we therefore consider and conclude that these effects should be afforded a neutral weight in the planning balance.
- 23.2.25. In terms of cumulative effects, we acknowledge and accept that there would be potential 'moderate adverse' significant effects on UK dredge fishery, UK potting fleets and UK and Isle of Man dredge and demersal otter trawl fisheries. During the proposed development's construction/ decommissioning, any contributory effects would be reduced through the Fisheries Liaison and Co-Existence Plan (FLCP). During the operational phase, there is nothing in the information before us which would prevent fishers from returning to fish within the footprint/ area of the application site should they choose to as there is an expectation that cables would be covered (with a preference for burial). Therefore, whilst we are satisfied that the FLCP would be sufficient to reduce the contributory effects that proposed development makes to these overall cumulative effects, we accept this would not remove all cumulative effects given the number of other offshore wind projects that are being proposed and so could be in existence over the same timeframe. Overall, we consider and conclude that the cumulative effects of the development on commercial fisheries should be afforded moderate negative weight in the planning balance.

- 23.2.26. In response to the objection by Bodorgan Marine Limited (BML) we conclude that most of its issues relate to the powers of The Crown Estate (TCE) and lease arrangements and fall outside our remit. For those which fall within our remit, the application site does not overlap an existing or proposed strategic area for sustainable aquaculture as referenced within policy NW-AQ-1 of the NWMP. Furthermore, there is nothing before us to suggest that BML plans and proposals are likely to materialise within a timeframe that is proximate to the construction or operation of the proposed development, and therefore this does not weigh against the proposed development.
- 23.2.27. Overall, when considered together, we conclude that the effects of the proposed development on commercial fisheries as a whole should be afforded a little negative weight in the planning balance.

FISH AND SHELLFISH ECOLOGY

- 23.2.28. We are satisfied that the applicant has undertaken suitable assessments to identify potential impacts and effects on fish and shellfish ecology receptors. This included a consideration of potential impacts on spawning grounds, nursery grounds, feeding grounds, over-wintering areas for crustaceans, migration routes and protected species and sites.
- 23.2.29. We are also satisfied that the applicant has consulted appropriately with relevant statutory consultees and other stakeholders on the assessment methodologies and baseline data collection, and has taken into account views on the potential avoidance, mitigation and compensation options which should be undertaken.
- 23.2.30. We are satisfied that the mitigation measures incorporated into the design of the development and secured as part of the DCO would avoid, minimise and mitigate the impacts of the development on fish and shellfish receptors including fish spawning grounds. The embedded mitigation measures would ensure activities are confined to the minimum areas required for those works. Where ground conditions allow, cables would be buried, or cable protection applied to minimise EMF effects. Furthermore works would be planned and measures secured to avoid or limit disturbance to fish as a consequence of noise from piling and construction activities unless other noise abatement systems have been agreed and employed as part of the final Underwater Sound Management Strategy (UWSMS). These would be secured through requirement 2 of schedule 2 of the dDCO and conditions 2, 9 and 20 of the deemed marine licence (DML) within schedule 6 of the DCO. We are content that the proposals and the proposed development meet the requirements of paragraph 5.4.35 of NPS EN-1 and paragraphs 2.8.147, 2.8.151 to 2.8.164 and 2.8.310 of NPS EN-3 and paragraph 2.11.13 of NPS EN-5.
- 23.2.31. Taking all the relevant documentation and evidence into account, we have no reason to disagree with the applicant's conclusions regarding the residual effects of the proposed development. We therefore concur with the applicant that all project alone and cumulative residual effects would range from 'negligible adverse' to 'minor adverse' and would not be significant in EIA terms.

- 23.2.32. Consequently, we conclude that the effects of the proposed development on fish and shellfish ecology as a whole should be afforded a little negative weight in the planning balance.

HUMAN HEALTH

- 23.2.33. In accordance with NPS EN-1 (NPS EN-1, paragraphs 4.4.4 to 4.4.6) we are satisfied that the applicant has considered the impacts of the proposed development and assessed its potential effects on different determinants of human health. This includes a consideration of potential cumulative effects as a consequence of impacts with other projects and plans that may affect people simultaneously.
- 23.2.34. We are satisfied that all relevant policies and requirements in relation to human health, including those within NPS EN-1 and EN-5, have been met, and that the applicant's assessment meets the requirements of the EIA Regulations and is also consistent with the advice contained within the National Planning Policy Framework (the Framework) (paragraphs 96 and 198) and that set out within the Planning Practice Guidance (PPG).
- 23.2.35. The proposed development is located entirely offshore and a considerable distance from local populations that could be adversely affected by impacts such as noise and water pollution. We have assumed that the relevant pollution control and environmental regulatory regimes would be properly applied and enforced (NPS EN-1, paragraph 4.12.10) and agree with the applicant that effects on human health as a result of electromagnetic fields did not need to be assessed. Therefore, we are content that the assessment does not conflict with the requirements of NPS EN-5 (NPS EN-5, paragraphs 2.9.44 to 2.9.58) nor prevent or impede our ability to conclude on matters relating to this issue (NPS EN-5, paragraph 2.10.11).
- 23.2.36. Taking all the relevant documentation and evidence into account, we have no reason to disagree with the applicant's conclusions regarding the residual effects of the proposed development on determinants of human health.
- 23.2.37. With the exception of the wider societal effects, we therefore concur that the project alone and cumulative effects of the development would have both beneficial and adverse effects which range from 'negligible' to 'minor' and not significant in EIA terms. We conclude taking these factors together those effects should be given neutral weight in the planning balance.
- 23.2.38. In respect of the wider societal effects, that is the provision of a source of electricity from a renewable source, we concur that the proposed development would result in significant 'moderate beneficial' public health benefits and so ascribe this moderate positive weight in the planning balance.
- 23.2.39. When considered together, we consider that the effects of the proposed development on human health should be afforded a little positive weight in the planning balance.

INFRASTRUCTURE AND OTHER USERS

- 23.2.40. We are satisfied that the applicant has had regard to the NWMP and engaged with relevant stakeholders to identify existing and known or potential activities and infrastructure that have the potential to interact and be affected by the proposed development.
- 23.2.41. We are also satisfied that through this engagement the applicant has sought to shape its assessments to minimise potential interactions and addressed potential impacts on some, but not all, other offshore infrastructure and activities. This includes potential effects on subsea cables, oil and gas infrastructure and marine recreational users. However, it is evident that concerns about the potential impact of wake effects on existing OWFs were raised by the Ørsted Interested Parties (IPs) (see paragraph 1.4.20 of this report for definition) during the pre-application stage. During our examination the applicant did not contest that wake effects could occur or dispute the level of effect as identified within the Ørsted IPs own wake effects assessment. As the applicant did not carry out its own assessment or demonstrate that best efforts or opportunities were taken to try and resolve and minimise the negative effects of wake loss through early engagement with affected IPs or through proper assessment, we have concluded that the applicant does not fully comply with the requirements of paragraph 2.8.197 of NPS EN-3 and policy NW-CO-1 of the NWMP, insofar as it relates to co-existence with other offshore wind infrastructure. In our view, this non-compliance should be given a little negative weight in the planning balance.
- 23.2.42. Although the applicant did not carry out its own wake effects assessment, it did however update its GHG assessment to take into account the effects of wake loss in terms of net greenhouse gas emissions. Given this we are satisfied that it has adequately assessed the environmental effects of the proposed development as required by regulation 14 paragraph 5(f) of Schedule 4 of the EIA Regulations and has met the requirements of section 4.3 of NPS EN-1.
- 23.2.43. In respect of impacts on existing oil and gas operations and infrastructure, we conclude that a balanced and pragmatic approach is required to address the effects and concerns raised by the oil and gas industry. We recommend revised protective provisions (PP) that we consider balance the interests of both parties that would ensure there are adequate safeguards in place to allow for the continued and safe operation of the existing oil and gas industry while facilitating the proposed development. This approach would allow the renewable energy benefits of the proposed development to be realised whilst enabling co-existence and co-location to take place and ensuring any disruption, economic loss or risks to safety are minimised and avoided. We are therefore satisfied that the proposed development complies with the requirements of paragraphs 2.5.2, 2.8.48, 2.8.203, 2.8.344 and 2.8.345 of NPS EN-3 and policies NW-OG-1 and NW-OG-2 of the NWMP and, insofar as it relates to co-existence with oil and gas infrastructure, policy NW-CO-1 of the NWMP. Nevertheless, we acknowledge that the presence of the proposed development would place restrictions on the current operations

compared with the pre-development situation and afford those effects a little negative weight in the overall planning balance.

- 23.2.44. In terms of effects on future carbon capture and storage proposals, whilst a licence has been issued for the initial exploration and appraisal stages of this proposed development, no permission or agreement for lease has yet been granted that would allow for the storage of carbon dioxide (CO₂) within depleted gas fields. Given the early stage of these proposals, including the lack of any details about the design and location of the offshore infrastructure needed to support any such activity, we consider it neither necessary nor reasonable for the applicant to have identified or proposed any specific mitigation. We also consider it unnecessary for any protective provisions to be made in favour of that licensee. We have concluded that the proposals comply with the requirements of NPS EN-3 and policies NW-OG-1 and NW-OG-2 of the NWMP and that the effects of the proposed development on the future carbon capture and storage proposals should be afforded neutral weight in the planning balance.
- 23.2.45. We conclude that matters in relation to the potential effects of the proposed development on disposal/ aggregate sites, other subsea telecommunication cables and marine recreational users have been resolved to the extent that is necessary for the purposes of the examination. We are satisfied that the proposals comply with the requirements of NPS EN-3 and policies NW-ACC-1 and NW-TR-1 of the NWMP and that the effects on these receptors should be afforded neutral weight in the planning balance.
- 23.2.46. Overall, when considered as a whole, we conclude that the effects of the proposed development on other infrastructure and other users should be afforded little negative weight in the planning balance.

MARINE ARCHAEOLOGY

- 23.2.47. We are satisfied that the applicant has undertaken an assessment of the heritage assets whose significance may be affected by the proposed development, setting out those significances and how they can be understood in line with paragraphs 5.9.9, 5.9.10 and 5.9.12 of NPS EN-1.
- 23.2.48. We are satisfied that the applicant has properly assessed the potential for the proposed development to affect the significance for both known and unknown heritage assets and has set out appropriate avoidance measures for those which are known at this point in time. This would also apply for currently unknown heritage assets that are identified in specified future surveys in defining the final layout in accordance with paragraphs 5.9.9, 5.9.10 and 5.9.18 of NPS EN-1.
- 23.2.49. While it would not be possible to avoid currently unknown heritage assets which were only encountered during construction, the likelihood of this occurring is considered to be limited due to post-consent surveys and micro-siting. Furthermore, if this were to occur appropriate recording would take place. While this would not represent mitigation or compensation, this is realistically the only measure that could be put into place.

- 23.2.50. Although there has to be some remaining uncertainty as to this, we consider, on the basis of the evidence in front of us, that the proposed development would have a neutral effect on marine archaeology and thus be neutral in the planning balance. Within the terms of NPS EN-1 it would result in the preservation of the significances of these heritage assets.

MARINE GEOLOGY, OCEANOGRAPHY AND PHYSICAL PROCESSES

- 23.2.51. We are satisfied that the applicant has undertaken an assessment of the proposed development as required in NPS EN-1 and NPS EN-3 has taken place for marine geology, oceanography and physical processes, and that no significant effects in EIA terms would be likely to occur.
- 23.2.52. Due to distance, even in combination, the proposed development would have no material effects on coastal processes and would therefore comply with section 5.6 of NPS EN-1. There would be no transboundary effects.
- 23.2.53. Overall, we consider that, while there would be some movement of sediments from the construction of the proposed development, this would be so minimal and therefore we consider there would be neutral effects on marine geology, oceanography and physical processes which is thus neutral in the planning balance.

MARINE MAMMALS

- 23.2.54. We are satisfied that the applicant's assessment of the proposed development and the associated design and mitigation are in accordance with NPS EN-1 and NPS EN-3 for marine mammals, and that there would be no residual significant effects in EIA terms.
- 23.2.55. Overall, we consider that the proposed development would have some minor adverse residual effects on marine mammals related primarily to piling and unexploded ordnance clearance, some of which would be addressed in more detail post-consent. Due to the importance of marine mammals, overall effects when taken together would carry moderate negative weight in the planning balance.

MARINE SEDIMENT AND WATER QUALITY

- 23.2.56. We are satisfied that the applicant has undertaken an assessment, made contact with relevant regulators and described the existing quality of waters which could be affected by the proposed development, as required by paragraphs 5.16.3, 5.16.4 and 5.16.7 of NPS EN-1.
- 23.2.57. We are satisfied that the design and embedded mitigations of the proposed development are such that they should ensure that significant adverse effects on the water environment are avoided. This would be secured through construction management plans and good practice controls in line with paragraph 5.16.8 and 5.16.9 of NPS EN-1.

- 23.2.58. Overall, we consider that the proposed development would have neutral effects in EIA terms in relation to marine sediment and water quality and thus is neutral in the planning balance.

OFFSHORE ORNITHOLOGY

- 23.2.59. We have considered and assessed all submissions made by the applicant and IPs as the examination progressed, and have put questions to the parties both orally and in writing to obtain clarification of important and relevant issues as necessary, and conclude as follows:
- impacts on ornithological receptors and bats have been properly considered and a satisfactory assessment has been carried out.
 - the applicant has responded satisfactorily to all representations made by IPs.
 - all important and relevant issues in relation to offshore ornithology and bats are now resolved.
 - the impacts of the proposed development may result in some significant effects, but we are satisfied that mitigation measures including monitoring would be secured in the recommended DCO and incorporated into the design, construction, operation and maintenance of the proposed development to ensure that any remaining residual significant effects have been mitigated as far as possible.
- 23.2.60. The proposed development would give rise to some minor adverse residual effects on ornithological receptors and bats, but potentially significant cumulative residual effects on greater black-backed gulls. Overall, we consider that effects taken together would carry moderate negative weight in the planning balance.

ONSHORE CULTURAL HERITAGE

- 23.2.61. We are satisfied that the applicant has undertaken an assessment of the heritage assets whose significance may be affected by the proposed development, setting out those significances and how they can be understood in line with paragraphs 5.9.9, 5.9.10 and 5.9.12 of NPS EN-1.
- 23.2.62. We have considered the effect of the proposed development on terrestrial heritage assets and have concluded that there would be less than substantial harm to the settings of the designated heritage assets identified in paragraph 17.3.25 of chapter 17 of this report.
- 23.2.63. Considerable importance and weight should be given to any heritage asset's conservation, with greater weight given the more important the asset in accordance with paragraphs 5.9.27 and 5.9.28 of NPS EN-1, and paragraph 212 of the Framework, and great weight and importance should be given to any harm to a heritage asset in the overall balance in line with regulation 3 of the Infrastructure Planning (Decisions) Regulations 2010 (the Decisions Regulations).
- 23.2.64. Paragraph 5.9.32 of NPS EN-1 indicates that where a proposed development would lead to less than substantial harm to a designated

heritage asset, this harm should be weighed against the public benefits of the proposal, and this is done in paragraphs 23.2.100 and 23.2.101 of this report below. Paragraph 2.3.8 of NPS EN-3 notes that the SoS should take into account the positive role that large-scale renewable projects play in the mitigation of climate change, the delivery of energy security and the urgency of meeting the net zero target.

- 23.2.65. Similarly, policy NW-HER-1 of the NWMP notes that, where proposals may cause harm to the significance of heritage assets, proponents must demonstrate a hierarchical approach. The policy continues that if it is not possible to mitigate, then public benefits for proceeding with the proposed development must outweigh the harm to significance. This is considered below.

SEASCAPE, LANDSCAPE AND VISUAL EFFECTS

- 23.2.66. Our overall conclusion is that the applicant has carried out a landscape and visual assessment, including cumulative effects, and has referred to landscape and seascape character assessments and considered the effects in relation to the natural beauty and special qualities of protected landscapes, in line with NPS EN-1 and NPS EN-5.
- 23.2.67. The transmission elements of the proposed development, that is the offshore substation platforms (OSP), would be comparatively low when compared to the wind turbine generators (WTGs) meaning that they would be mostly obscured by the curvature of the Earth. Any remaining effects would be considered as part of the consideration of the final layout. The proposed development would therefore comply with paragraph 2.11.3 of NPS EN-5 which requires options for mitigation to be considered and evaluated appropriately.
- 23.2.68. In our view, the proposed development would have:
- a 'major' harmful effect on visual receptors along the Lancashire coast between Fleetwood and Lytham St Anne's
 - a 'medium', although not significant, harmful effect on the seascape of Marine Character Area 34
 - 'little' harmful effect on other visual receptors
 - subject to an appropriate layout, a neutral effect on landscape receptors, including protected landscapes
- 23.2.69. Paragraph 2.8.352 of NPS EN-3 notes that, where adverse effects are anticipated during the operational phase, the SoS should consider the extent that any effects are temporary or reversible. In our view, given the length of proposed operation of the proposed development such effects should be considered to be long-term, so this does not reduce the degree of harm.
- 23.2.70. Because of the importance of protected landscapes, we have considered them separately. In our view for the reasons set out, we consider that the effect of the proposed development on these receptors would be neutral, and this would also apply to landscape receptors more generally.

- 23.2.71. While for most visual receptors there would be little harmful effects, because of the major harmful effect on those between Fleetwood and Lytham St Anne's we consider, taken as a whole, the proposed development would have a moderate negative weight on seascape and visual receptors to be taken forward in the planning balance.

SHIPPING AND NAVIGATION

- 23.2.72. We are satisfied that the proposed development would not affect any recognised sea lanes essential to international navigation.
- 23.2.73. The proposed development would result in some additional distance to be travelled for ferries, but this would predominantly relate to one of the 'normal' weather routes between Liverpool and Belfast. The proposed development would not add to other effects on ferry routes which would be occasioned by other cumulative projects. During adverse weather, operators would have less options as to routing, but given the relative infrequency of this occurring, and that few adverse weather routes utilise the application site this does not add to the adverse effects identified.
- 23.2.74. There would be adverse effects on other shipping in the area which would have to travel further to avoid the proposed development and other cumulative projects. While as low as reasonably practicable (ALARP) there would be increases in risk of allision which updates to radar early warning systems (REWS) would only partially mitigate. However, the risks would remain low.
- 23.2.75. As traffic would be required to use less searoom than at present, and traffic exiting the proposed development may not be identified due to masking, the proposed development would increase the risk of collision. However, the risks would remain low in absolute terms.
- 23.2.76. Consequently, there would be a higher risk of utilising search and rescue (SAR) to respond to incidents. Nevertheless, particularly during the construction phase, as there would be more vessels in the vicinity, these may be able to assist in an emergency. We therefore consider that risks to those using this area would not change overall.
- 23.2.77. In our view, the proposed development would not adversely affect major commercial navigation routes by causing appreciably longer transit times. Rather it would affect less strategically important shipping routes. In line with paragraph 2.8.330 of NPS EN-3 the SoS should take a pragmatic approach to considering proposals to minimise negative impacts.
- 23.2.78. There would be an increased risk of fishing gear snagging, on exposed cables particularly during the construction period between installation and protection being provided. These risks would be for only a relatively short period of time and would, in our view, therefore be low. Once operational, due to notification procedures the risks would be very low as those using the sea would be able to identify locations from records.

- 23.2.79. The proposed development would not interfere with microwave communications equipment. This is a neutral factor.
- 23.2.80. Through appropriate protective provisions, it would be possible to ensure that appropriate searoom was provided for the decommissioning of existing oil and gas installations.
- 23.2.81. Overall, we consider that the proposed development would have limited residual negative effect on shipping and navigation and this should be given a little negative weight against the granting of the DCO.

SOCIO-ECONOMICS, TOURISM AND RECREATION

- 23.2.82. We are satisfied that the applicant has adequately described the socio-economic conditions in the area surrounding the proposed development and assessed the potential socio-economic impacts at a local, regional and national level.
- 23.2.83. We are satisfied that the applicant has carried out sufficient engagement with key stakeholders and its assessment demonstrates a good appreciation and understanding of the local and regional issues, opportunities and the effects of the proposed development.
- 23.2.84. We concur with the applicant's findings that the development would support a net increase in marine related employment and would not have a significant adverse effect on the tourism and recreation sector or fishing industry overall. We are also content that the applicant has considered the potential for disruption and economic loss to other commercial and recreational users of the sea and sought to minimise negative impacts and reduce risks to as low as reasonably practicable.
- 23.2.85. We concur with the applicant that the development would have positive benefits for both the national and local economy albeit these are not significant. We are also satisfied that appropriate measures have been identified and would be secured as part of the development to reduce the identified residual adverse effects and that the measures as set out in the final Skills and Employment Plan would help to promote local employment and skills development opportunities.
- 23.2.86. Taking all the relevant documentation and evidence into account, we agree with the applicant's conclusions that the proposed development would have both 'negligible adverse' and 'negligible beneficial' effects for the different impacts assessed in relation to socio-economics, tourism and recreation.
- 23.2.87. We are content that the proposals comply with paragraphs 5.13.2 to 5.13.6 and 5.13.8 and 5.3.12 of NPS EN-1 as well as paragraphs 2.8.178, 2.8.322 and 2.8.328 of NPS EN-3. Because the benefits of the proposed development are equally weighted with identified harm, we consider there are no residual effects or issues which affect the planning balance. Therefore, when considered together, we conclude that the effects of the

proposed development on socio-economics, tourism and recreation as a whole should be afforded neutral weight in the planning balance.

TRAFFIC AND TRANSPORT

- 23.2.88. We are satisfied that, to the extent assessed, the proposed development would ensure that it did not have any adverse effects on onshore traffic and transport interests. As such we consider this is a neutral issue for the final planning balance.

INTERRELATIONSHIPS

- 23.2.89. We have looked at the various receptors identified by the applicant and other interested parties to consider whether different harms from different effects may have effects on an individual receptor. Our particular concerns related to ecological receptors, such as Marine Conservation Zones (MCZs) where effects on benthic ecology, marine sediment and physical processes could additionally affect that receptor.
- 23.2.90. We have not identified any such receptors where effects would materially increase effects which were individually identified as 'not significant' in EIA terms so as to be 'significant'.

THE ENVIRONMENTAL STATEMENT

- 23.2.91. Taken together, we have examined the environmental statement material and consider that the applicant has provided sufficient information to enable the SoS to reach a reasoned conclusion on the likely significant effects of the proposed development and whether to include monitoring.

HABITATS REGULATIONS ASSESSMENT CONSIDERATIONS

- 23.2.92. We are satisfied that all relevant European sites and qualifying features were identified for assessment, and that all potential impacts have been assessed. We are also satisfied that all relevant projects for the in-combination assessment that could give rise to significant effects were identified and assessed.
- 23.2.93. Our findings are that, subject to the mitigation measures to be secured in the recommended DCO (rDCO), adverse effect on integrity (AEoI) from the proposed development when considered alone or in combination with other plans or projects can be excluded for the European sites listed in table 2.3 of the Report on the Implications for European Sites (RIES), aside from lesser black backed gull (LBBG) of the Morecambe Bay and Duddon Estuary SPA and Ramsar site, and the Ribble and Alt Estuary SPA and Ramsar site. For the reasons set out above regarding the potential for exploration of further mitigation in the form of a no development buffer zone, we consider that it is possible AEoI could be ruled out for the red-throated diver (RTD) qualifying feature of Liverpool Bay SPA.
- 23.2.94. For these sites and features, the applicant has provided 'without prejudice' compensation measures (CM), which we have examined and sought views

on from the relevant appropriate nature conservation bodies. We consider that there is sufficient information for the SoS to establish that appropriate CM can be implemented, to fulfil their duty under the requirements of The Habitats Regulations. We conclude that the overall package of proposed CM is feasible, appropriate and would ultimately ensure the overall coherence of the United Kingdom National Site Network.

- 23.2.95. The applicant has submitted a 'without prejudice' derogation case for LBBG, which includes an assessment of alternative solutions, the applicant's imperative reasons of overriding public interest (IRoPI) case, and proposed CM. These matters were considered during examination. Given the evidence available, it is our opinion that there are no alternative solutions that would result in a lesser adverse effect to LBBG and that IRoPI for the proposed development could be established. The findings of the examination are that the CM package as proposed is feasible and appropriate and is adequately secured in the rDCO.
- 23.2.96. Having noted that the potential for further mitigation for RTD has not been fully explored due to timing of representations, we have acknowledged and examined the 'without prejudice' derogation case for RTD. Should the SoS determine that AEoI cannot be excluded, and that no feasible alternative solution exists that would represent a lesser adverse effect to RTD than the proposed development, we recommend, based on the evidence available, that IRoPI for the proposed development could be established and that the CM package as proposed is feasible and appropriate and adequately secured in the rDCO.
- 23.2.97. We consider that there is sufficient information before the SoS to enable them to undertake an appropriate assessment and to apply the derogation tests of The Habitats Regulations of alternative solutions, IRoPI, and CMs to fulfil their duty under the requirements of The Habitats Regulations.
- 23.2.98. We consider that there is sufficient information before the SoS to enable them to understand the potential for adverse effects on European sites from the proposed development alone or in combination with other plans or projects. However, given the amount of HRA information submitted following publication of the RIES, the SoS may wish to undertake further consultation to fulfil the duties under Regulation 28(4) of The Conservation of Offshore Marine Habitats and Species Regulations 2017.

BIOLOGICAL DIVERSITY

- 23.2.99. Under regulation 7 of The Infrastructure Planning (Decisions) Regulations 2010 the SoS must have regard to the United Nations Environmental Programme Convention on Biological Diversity of 1992. In light of our conclusions on the relevant individual topic areas considered above, we are satisfied that there would be compliance.

HERITAGE BALANCE

- 23.2.100. We consider that the need for and benefits of the proposed development outlined above would outweigh, in each case, the less than substantial harm that would be occasioned to the settings of the designated heritage assets identified in paragraph 17.3.25.
- 23.2.101. Therefore, we are satisfied that the public benefits provide a clear and convincing justification for the harm that would result, both individually and collectively, upon designated heritage assets. Overall, we consider that matters concerning the historic environment would accord with the relevant provisions of paragraph 5.9.33 of NPS EN-1 but should be given a little negative weight against the proposed development in the planning balance.

23.3. OVERALL PLANNING BALANCE

- 23.3.1. We set out in Table 8 the various weightings that we have given to the individual topic areas above.

Table 8: Weight given by ExA to planning issues

Planning Issue	Weight	Chapter
Need and Alternatives	Very great positive	4
Human health	A little positive	10
Climate change	Neutral	7
Landscape receptors (including protected landscapes)	Neutral	18
Marine archaeology	Neutral	12
Marine geology, oceanography and physical processes	Neutral	13
Marine sediment and water quality	Neutral	15
Socio-economic, tourism and recreation	Neutral	20
Traffic and transport	Neutral	21
Benthic ecology	A little negative	5
Civil and military aviation and radar	A little negative	6
Commercial fisheries	A little negative	8
Fish and shellfish ecology	A little negative	9
Infrastructure and other users	A little negative	11
Onshore cultural heritage	A little negative	17
Shipping and navigation	A little negative	19
Marine mammals	Moderate negative	14
Offshore ornithology and bats (excluding habitats regulations assessment)	Moderate negative	16
Seascape and visual receptors	Moderate negative	18

- 23.3.2. While this is a matter for the SoS as competent authority, we believe that with appropriate mitigation in the form of the layout and compensation for other effects, the proposed development would not have an AEoI of any national network sites.
- 23.3.3. There are three matters where the SoS may feel that they wish to seek comments from parties:
- Firstly, as set out in paragraphs 2.3.14 and 2.3.15, we have not taken into account the draft national policy statements published after the close of the examination, but are of the view that they would not affect our recommendation.
 - Secondly, as highlighted elsewhere, to avoid AEoI on the RTD qualifying feature of the Liverpool Bay SPA we are proposing a 7.5km buffer from the 'original' SPA boundary, and as set out below the alternative of constructing the proposed development in the western part of the application site. This proposal was not put to parties. In addition, a significant amount of information was submitted in response to the RIES at the last deadlines, which parties were not necessarily able to respond to.
 - Thirdly, as set out in paragraph 11.3.46, at the last deadline (deadline 6) Spirit Energy Production Limited (Spirit) submitted additional information, to which we were unable to give as much consideration as we would have liked. Should the SoS wish to rely on this, in the interests of openness and fairness they might like to seek views upon this. However, we consider that this is not necessary based on the information otherwise provided to the examination and this does not make a difference to our recommendation.
- 23.3.4. We are mindful of the legal framework within which the SoS must decide the application and have sought to explore and seek representations on the operation of s104 of the PA2008 and the planning balance.
- 23.3.5. S104(2) and s104(3) of the PA2008 require the SoS to have regard to, and to decide the application in accordance with the relevant designated NPS except to the extent that one or more of subsections (4) to (8) apply.
- 23.3.6. We conclude that the NPS EN-1 sets out the need for additional energy infrastructure in general and that subject to the detailed policies and protections within it, and the legal constraints set out in the PA2008, there is a presumption in favour of granting development consent for energy NSIPs that fall within that need (NPS EN-1, paragraphs 4.1.3 and 4.1.4).
- 23.3.7. We are satisfied that while there may be a small number of areas where the proposed development does not completely comply with the relevant designated NPS, we conclude that the proposed development would comply with the relevant national policy statements, NPS EN-1, NPS EN-3 and NPS-5, each taken as a whole. We are also satisfied that the proposed development would comply with the NWMP taken as a whole. Due to the offshore location of the proposed development, there were no Local Impact Reports.

- 23.3.8. S104(4), s104(5) and s104(6) of the PA2008 require the SoS to be satisfied the proposed development would not breach of the United Kingdom's international obligations, any duty imposed on the SoS by or under any enactment; or would be unlawful by any enactment. We are satisfied that, as discussed above, there would be compliance with each of these obligations.
- 23.3.9. Under s104(7) the SoS should be satisfied that the benefits of the proposed development should outweigh the adverse effects. Referring back to Table 8, we note the final consideration of these factors is not an arithmetic equation, rather it involves a subjective planning judgement as to the balance of factors. Taking all of this together, we conclude that the overall benefits of the proposed development outweigh the adverse effects.
- 23.3.10. S104(8) indicates that the SoS needs to be satisfied that any condition prescribed for deciding an application otherwise than in accordance with a NPS applies. We are satisfied that this would not be the case.
- 23.3.11. Taking all the above into consideration, we are of the opinion that the proposed development would comply with the relevant national policy statements and the appropriate marine policy document each taken as a whole and the benefits of the proposed development would outweigh the harms. From the above, our overall recommendation is that development consent should be granted.

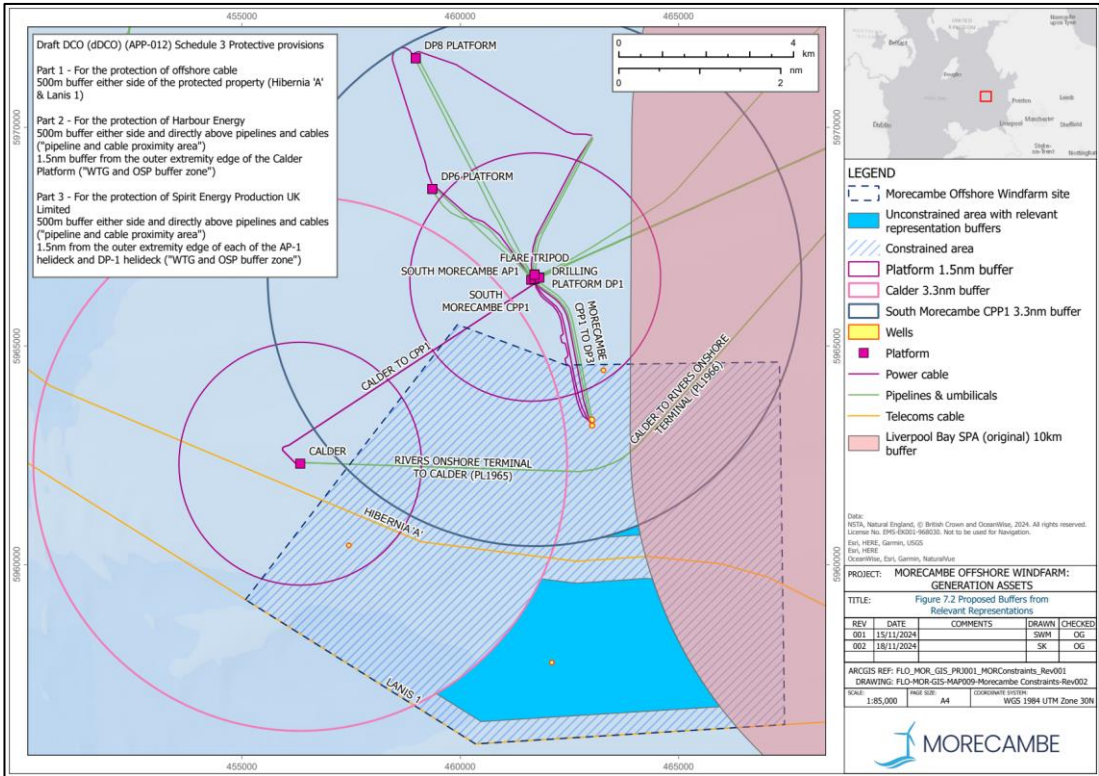
23.4. CONSTRAINTS ON THE LAYOUT OF THE PROPOSED DEVELOPMENT

- 23.4.1. The applicant has provided only an outline as to the form of the proposed development with no layout set, other than it would be constrained to lines of orientation. However, in response to our question ExQ1GEN3 [[REP3-068](#), appendix A] the applicant provided two 'nominal layouts' based on 30 WTGs and 2 OSPs and 35 WTGs and 2 OSPs. Our recommendation would not allow the applicant to implement the proposed development in the form that it is perhaps expecting.
- 23.4.2. There are two major constraints to the layout of the proposed development. To the west is the existing oil and gas field, discussed more fully in chapter 11 of this report, and to the east is the Liverpool Bay/ Bar Lerpwl (Liverpool Bay) Special Protection Area (SPA) discussed in chapter 22 and appendix C.
- 23.4.3. The applicant has set out the project objectives in its 'Habitats Regulations Assessment Without Prejudice Derogation Case' [[REP5a-011](#), table 4.1] and its 'Habitats Regulations Assessment Without Prejudice Derogation Case – Red-Throated Diver at Liverpool Bay / Bae Lerpwl SPA' [[REP5a-046](#), table 4.1] (they are the same). They are:
- decarbonisation of energy production
 - security of supply
 - affordability
 - co-ordination and co-existence with other activities.

23.4.4. In [REP5a-057, paragraph 16] the applicant confirmed the Project Design (or ‘Rochdale’) Envelope for the proposed development “has been developed to accommodate a range of reasonably foreseeable turbine capacities while constructing the 480MW project objective (and agreed with TCE) – 35 x 13.5MW machines to 30 x 16MW machines (which are both capacities available or in development in the wind turbine market)”.

23.4.5. As was made clear in the representations by the applicant, if the developable area of the application site were to be constrained so as to meet the full buffers requested by Spirit and Chrysaor Resources (Irish Sea) Limited, a subsidiary of Harbour Energy PLC (Harbour), and Natural England (NE) then it would only be able to deliver less than one-third of the number of WTGs (see Figure 24 which is [REP1-086, figure 7.2]). In this scenario the proposed development would not meet the project objectives. We note that this plan shows 3.3 nautical miles (nm) buffers from the Calder and Central Processing Complex (see paragraph 1.3.29 of this report) platforms, while by the end of the examination Spirit was arguing for 3.76nm (having reduced from 3.9nm).

Figure 24: Location Plan Proposed Buffers from Interested Parties in Relevant Representations. (Source: figure 7.2 of [REP1 086])



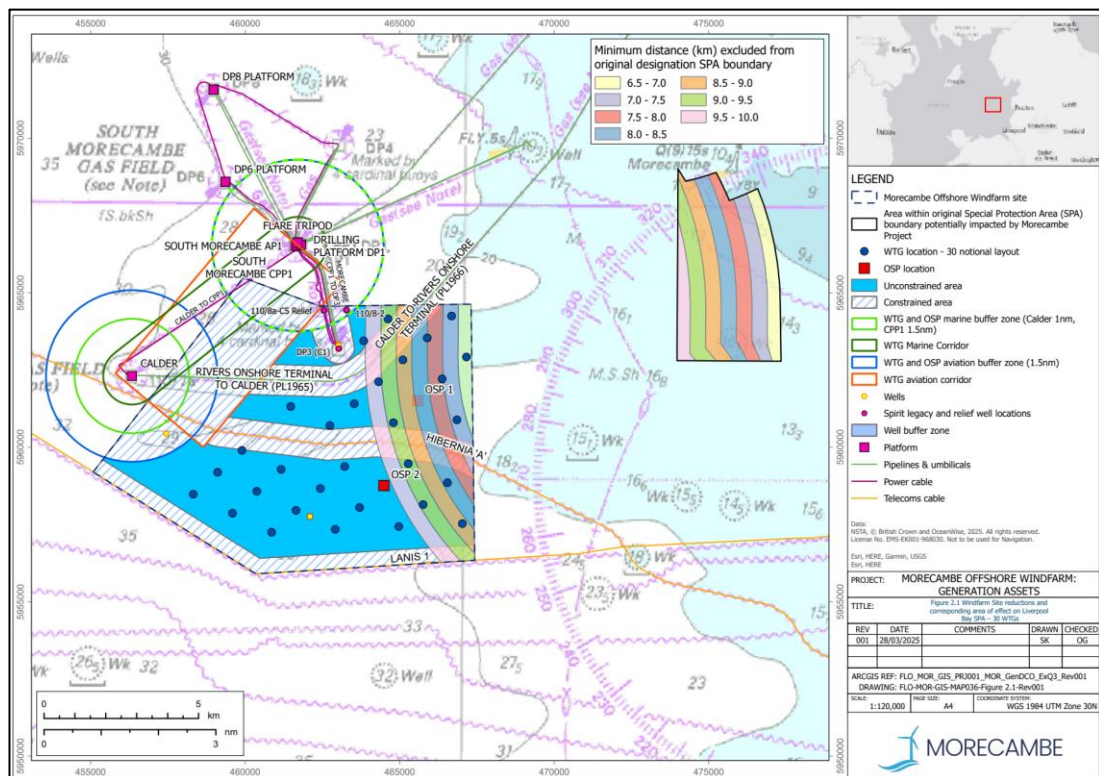
23.4.6. Reducing the number of WTGs to less than a third of those proposed, that is the area coloured bright blue, would obviously and clearly not meet the project objectives.

23.4.7. Our conclusion as set out in chapter 22 of this report is that, to mitigate an AEol of the Liverpool Bay SPA, which forms part of the UK national site network (see regulation 28 of The Conservation of Offshore Marine Habitats

and Species Regulations 2017), there should be no WTGs within 7.5km of the originally designated Liverpool Bay SPA. This would have the effect of preventing development of WTGs in the northeastern part of the application site.

- 23.4.8. Figure 25 below [REP5a-057, figure 2.1] shows the effect of a 7.5km buffer from the original Liverpool Bay SPA for the nominal layout for 30 WTG provided. figure 2.2 of [REP5a-057] shows a similar effect for a nominal layout of 35 WTGs.

Figure 25: Effect of varying buffers on nominal layout for 30 WTGs (Source: figure 2.1 of [REP5a 057])



- 23.4.9. Based on these nominal layouts the effect of requiring a 7.5km buffer would result in the 'loss' of 3.5 WTGs from each layout (since one WTG (WTG 28 as shown in [REP5a-057, figures 3.3 and 3.8] lies upon this line). The layouts are the same in this vicinity.
- 23.4.10. Our view is that limiting the placement of certain components, that is WTGs and OSPs, from within 7.5km of the original Liverpool Bay SPA boundary should be considered to be a reduction of 4 WTGs (WTG 23, WTG 27, WTG 28 and WTG 33 as shown in [REP5a-057, figures 3.3 and 3.8]).
- 23.4.11. The 'loss' of 4 WTGs would therefore result in the 'loss' of either 54MW (4 x 13.5MW) or 64MW (4 x 16MW) capacity, and would mean that the remaining development would not meet the project objectives.
- 23.4.12. Therefore, to meet the project objectives, it would then be necessary to 'replace' the 'lost' WTGs in another part of the site to meet the project

objectives. To our minds, the most obvious location for this would be in the northwest part of the site, that is the area which is currently constrained by oil and gas infrastructure.

- 23.4.13. The SoS will be aware from chapter 11 that there are disputes as to the extent of the buffer zones around the oil and gas installations. We consider that our recommendation below would allow for 'co-existence/ co-location' as required by NPS EN-3 (see for example, paragraph 2.5.2) with both the oil and gas facilities until its decommissioning and construction and operation of the proposed development.
- 23.4.14. Effectively, we consider that there should be 1.9nm enduring aviation buffers to the oil and gas platforms post 1 January 2029. This would sit fairly within the expected cessation of production taking place in 2027 plus or minus 2 years (see paragraphs 11.2.25 and 11.3.40 of this report and [\[REP4-070\]](#), paragraph 2.47]). We believe that this would allow the 'lost' WTGs to be sited in the general area of the Calder and CPC facilities, ensuring that the overall project objectives could still be fulfilled.
- 23.4.15. We note, however, that imposition of a 3.76nm aviation buffer in the interim, that is before 1 January 2029 (or later should the applicant not commence development prior to this date), or until decommissioning has completed as promoted by Spirit, would mean that most of the WTGs on both the nominal WTG layouts could not be installed without the agreement of Spirit or Harbour as the case may be.
- 23.4.16. In our view, our approach could lead to a delay in the operation of the OWF. However, this would not, in our view, make a material difference to the delivery of the energy to meet the Clean Power 2030 Action Plan. Firstly, as the Gantt chart for the 'Realistic expected scenario' ([\[REP1-086\]](#), figure 3.1]) shows, installation would not take place for foundations until quarter (Q) 2 of 2028, and the OSPs and WTGs would not be installed until Q3 of 2028 and Q2 of 2029 respectively.
- 23.4.17. There may be already a delay on this timeline, since it is anticipated in the Gantt chart that the Morgan and Morgan Transmissions Assets (M&MTA) project would receive consent in Q1 of 2026. However, the examination of the M&MTA project did not start until 30 April 2025 meaning, following the statutory timetables, that a decision would not be expected until 29 April 2026, which is in Q2. It is unlikely that a developer would commit to delivering the proposal until after the relevant statutory challenge period had passed.
- 23.4.18. It is not clear from 'Clean Power 2030 Action Plan' whether the relevant date is at the beginning, middle or end of that year, but given normal government terminology we would expect that to be 31 December 2030.
- 23.4.19. We were advised that there would be a 2.5 year construction and installation period (see chapter 5 of the Environmental Statement (ES) [\[REP1-022\]](#), paragraph 5.79]). To meet a 31 December 2030 deadline would mean commencing development in mid-2028. Since development would be able to

commence outside the 3.76nm interim buffer this would allow preparation works and some foundations outside this buffer.

- 23.4.20. We note that in the 'Delayed Scenario' (see [\[REP1-086\]](#), section 3.4 and figure 3.2]) installation of the proposed development would not be until 2031 and final commissioning in 2032, which would, of course, miss the Clean Power Action Plan 2030 deadline in any event.

23.5. ALTERNATIVE SCENARIOS FOR DECISION MAKING

- 23.5.1. The SoS may, of course, conclude differently to us on various matters. We are not going to set out every possible permutation. Rather, we are going to set out some general principles that the SoS could follow.
- 23.5.2. Were the SoS to conclude, in line with the applicant, that the proposed development would not result in an AEoI on the Liverpool Bay SPA then there would be no need to constrain development on the eastern side.
- 23.5.3. However, were they to agree with NE's original position that a 10km buffer from the original Liverpool Bay SPA were necessary to avoid AEoI, then this would effectively nullify any permission since it could not meet its project objectives. For example, in Figure 25 such a buffer would prevent 13 WTGs and one OSP within the 35 WTG layout. In this scenario, the SoS may wish to consider whether, there being no alternative solutions, the proposed development must be carried out for imperative reasons of overriding public interest (IRoPI).
- 23.5.4. In a similar way, the SoS may agree with Spirit and Harbour and consider that constraining the oil and gas facilities would be unacceptable. Here 3.76nm buffers, in particular from the CPC, would be necessary until the end of decommissioning, which may not be until the mid-2030s [\[REP6-058\]](#), section 6.1], and further buffers would also be needed around the legacy oil well sites (see Spirit's draft protective provisions [\[REP6-059\]](#), paragraph 3(2)) of those set out for the protection of Spirit Energy Production UK Limited).
- 23.5.5. The reason for Spirit's approach relates to its interpretation of section 9A of the Petroleum Act 1998. This has been set out in chapter 11 (paragraphs 11.3.50 and 11.3.51) and the SoS is specifically referred to this section of this report. Our conclusion there is if petroleum production ceased as a result of the proposed development, then there would still be compliance with section 9A of the Petroleum Act and the SoS would be complying with section 9BA of the Act which requires the SoS to act in accordance with that strategy.
- 23.5.6. In our view, if petroleum production ceased as a result of the proposed development after 1 January 2029 when the quantum of reserves from the site is likely to have declined to a very low level at best, on the basis of evidence available to the examination we consider that this would be appropriate in the journey to net zero. While Spirit is seeking to extend the life of the oil and gas fields into the 2030s we have no evidence that it has

found any further reserves or the ability to extract additional petroleum products from the resources currently identified.

- 23.5.7. However, the SoS may agree with Spirit that sections 9A and 9BA of the Petroleum Act 1998 constrain Spirit and the SoS, and the buffers requested by Spirit should be applied. In that case, even with an implementation timetable of 7 years, this would make the proposed development unviable since it would make the delivery of the project objectives not possible until after decommissioning of the oil and gas facility. This may not be until 2035 [[REP6-058](#), paragraph 6.15].
- 23.5.8. The SoS may take a middle view which could be that the number of WTGs is effectively restricted by maintaining the oil and gas installations buffers at a distance less than proposed by Spirit but more than as sought or recommended. Here the SoS may wish to consider whether some could be 're-provided' in the 7.5km (or other) buffer in relation to the Liverpool Bay SPA. Again, in this scenario, the SoS may wish to consider whether there would be IROPI to allow the development to proceed.
- 23.5.9. The applicant sets out its case for a derogation, on a 'without prejudice' basis in its 'Habitats Regulations Assessment Without Prejudice Derogation Case' [[REP5a-011](#)] and 'Habitats Regulations Assessment Without Prejudice Derogation Case – Red-Throated Diver at Liverpool Bay / Bar Lerpwl SPA' [[REP5a-046](#)]. These are discussed further in chapter 22.
- 23.5.10. If, in line with our conclusions in chapter 22, the SoS is satisfied that, there being no alternative solutions, the project must be carried out for IROPI notwithstanding a negative assessment of the implications for the site, and the SoS as the competent authority concludes that there are IROPI, they would then be required to secure any necessary compensatory measures to ensure that the overall coherence of the national site network is protected. The mechanisms for delivering this are set out within the dDCO [[REP6-002](#)] and are discussed in chapter 25 of this report.

23.6. CRITICAL NATIONAL PRIORITY INFRASTRUCTURE

- 23.6.1. As can be seen we have not considered the case against the need for Critical National Priority (CNP) Infrastructure. This is because our recommendation to grant development consent does not rely on this factor. However, should the SoS come to a different conclusion on the planning balance as set out in sections 23.3 to 23.5 of this report then section 4.2 of NPS EN-1 should be considered.
- 23.6.2. Under the terms of the glossary of NPS EN-1 the proposed development represents CNP infrastructure. No representations to the contrary were submitted.
- 23.6.3. The SoS's consideration of CNP policy will depend on their conclusions in relation to the effects on MBDE SPA and Ramsar site and RAE SPA and Ramsar site and the Liverpool Bay SPA. If the SoS concludes that the proposed development would have an AEoI on either or both national site

network sites, then the process set out in figure 3 of NPS EN-1 would apply. However, should the SoS conclude that it would not have such an effect on both sites then the process in figure 2 of NPS EN-1 would apply.

- 23.6.4. In either case, it will depend, of course, on the reasons why the SoS has concluded that the planning balance lies otherwise than with granting consent. The following paragraphs set out the relevant processes.
- 23.6.5. Where the process in figure 2 applies, we note that *“in all but the most exceptional circumstances, it is unlikely that consent will be refused”* on the basis of where residual impacts outweigh the urgent need for this type of development. In the circumstances of this case *“[t]he exception to this presumption of consent are residual impacts onshore and offshore which present an unacceptable risk to, or unacceptable interference with, human health and public safety, defence, irreplaceable habitats or unacceptable risk to the achievement of net zero. ... or unacceptable interference offshore to navigation”*.
- 23.6.6. Should it be necessary to follow the process in figure 3, where IROPI does not exist, then the first box notes that energy security and decarbonising *“are capable of amounting to ... IROPI for HRAs, the benefit to the public is capable of outweighing the risk of environmental damage”* [underlining in the original]. In relation to alternative solutions, the box states *“other potential plans or project deliverable in different locations to meet the need for CNP Infrastructure is unlikely to be treated as an alternative solution. Further, the existence of another way of developing the proposed plan or project which results in a significantly lower generation capacity is unlikely to meet the objectives and therefore be treated as an alternative solution”*.
- 23.6.7. In our view, should the SoS conclude that otherwise from the consideration of CNP that consent should be withheld, our view is that none of the specific exceptions set out in paragraphs 4.2.15 and 4.2.17 of NPS EN-1 would exist. Therefore, were the situation of considering CNP apply, then this would allow the SoS to grant consent.

23.7. ExA’s OVERALL CONCLUSION ON THE CASE FOR DEVELOPMENT CONSENT

- 23.7.1. Subject to our comment in paragraph 23.3.3 our overall conclusion is that the proposed development would comply with NPS EN-1, NPS EN-3 and NPS EN-5 insofar as each is relevant taken as a whole. It would also comply with the North West Inshore and North West Offshore Marine Plan taken as a whole. There would also be compliance with s104(4) to (6) of the PA2008. While there would be some adverse effects, these would be comprehensively outweighed by the benefits.
- 23.7.2. Although the decision on the Habitats Regulations Assessment is a matter for the SoS as competent authority, we are satisfied that:
- subject to the limitation of no WTGs or OSPs within 7.5km of the original Liverpool SPA there would be no AEoI on that site

- while there would be AEol on the MBDE SPA and RAE SPA, we consider that the applicant's derogation case demonstrates that there are IRoPI why development consent must be carried out, and necessary compensatory measures have been identified to secure that the overall coherence of the national site network is protected, which would be secured through the DCO.

23.7.3. Consequently, in our view the case for development consent has been made out.

24. LAND RIGHTS, HUMAN RIGHTS AND PUBLIC SECTOR EQUALITY DUTY

24.1. INTRODUCTION

24.1.1. This chapter deals with four separate topics:

- land rights in relation to the Crown
- sub-leasing of the site by the applicant
- human rights considerations
- the public sector equality duty

24.2. LAND RIGHTS

INTRODUCTION

24.2.1. The application does not include a request to interfere with land rights of any third party. That is, it does not include a request for the compulsory acquisition or temporary possession of any land of any third party. However, it does have potential to interfere with the interests of third parties, which is discussed under Human Rights considerations below.

24.2.2. However, the application originally did include a Crown Land Plan [\[APP-006\]](#), which was then amended [\[AS-002\]](#). This matter was discussed at issue specific hearing (ISH) ISH1 [\[EV3-001\]](#) to [\[EV3-008\]](#). We queried the need for such a plan, on the basis of whether the seabed of the application site represented “land” for the purposes of the Planning Act 2008 (PA2008). From this, may derive a need for a book of reference, which was not included within the application documentation.

24.2.3. Regulation 5(2)(d) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (the APFP Regulations) provides that “*where applicable, [a] book of reference*” must accompany the application for an order granting development consent. Regulation 7 of the APFP Regulations sets out the meaning and contents of a ‘book of reference’. The five parts of a book of reference as prescribed by regulation 7 are each required to be included where the proposed order will have an effect on ‘land’. In relation to the Crown specifically, regulation 7(1)(d) of the APFP Regulations provides that part 4 of a book of reference is required to specify “*the owner of any Crown interest in the land which is proposed to be used for the purposes of the order for which application is being made*”.

THE CASE FOR THE APPLICANT

24.2.4. In addition to its ‘Written Summary of the applicant's Oral Submissions - Preliminary Hearing and Issue Specific Hearing 1’ [\[REP1-085\]](#) the applicant provided a ‘Note on the judgement of the High Court in the case of *R (Parkes) v Secretary of State for the Home Department* [2024] EWHC 1253 (Admin)’ [\[REP1-088\]](#) (*Parkes*).

24.2.5. The fundamental point that the applicant made is that the seabed at the application site is, in its view, not ‘land’ for the purposes of the PA2008.

- 24.2.6. The applicant noted that in *Parkes* reference was made to the decision of the Inner House in *Argyll and Bute District Council v Secretary of State for Scotland* (1976) S.C. 248. Here the Inner House considered the definition of 'land' under the Town and Country Planning (Scotland) Act 1972. This definition of 'land' included 'land covered with water' (similar to the PA2008). The Court decided that 'land' did not extend beyond mean low water springs (MLWS) for the purposes of the Town and Country Planning (Scotland) Act 1972.
- 24.2.7. Secondly, the applicant noted that the *Parkes* case distinguished between the concept of land which is inheritable and land which is incapable of being inherited. It referred to s336(1) of the Town and Country Planning Act 1990 where 'land' is defined as "*any corporeal hereditament, including a building*". However, land between MLWS and 12 nautical miles (nm) from that point is 'allodial land' which is land of the monarch, and not held under any form of tenure.
- 24.2.8. The applicant also noted that the application site is at a greater distance than 12 nautical miles (nm) from MLWS and thus considers the application site not does not represent 'land' for the purposes of the PA2008. This is principally because this area is not capable of ownership. Article 56.1(a) of the United Nations Convention on the Law of the Sea (UNCLOS) notes that in the exclusive economic zone (EEZ), the area beyond 12nm below MLWS and within 200nm, "*the coastal state has sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and wind*".
- 24.2.9. The applicant contrasts this with article 2 which states "*the sovereignty of a coastal State extends, beyond its land territory and internal waters and, in the case of an archipelagic State, its archipelagic waters, to an adjacent belt of sea, described as the territorial sea*". Territorial Sea being defined in article 3 of UNCLOS as "*Every State has the right to establish the breadth of its territorial sea up to a limit not exceeding 12 nautical miles, measured from baselines determined in accordance with this Convention*".
- 24.2.10. Whilst not amounting to ownership of the seabed, a state has exclusive rights to "*explore, exploit, conserve and manage*" natural resources in its EEZ (UNCLOS article 73).
- 24.2.11. The applicant also referred to precedent in previously made development consent orders (DCO), citing in particular the Burbo Bank Extension offshore windfarm (OWF) DCO and Triton Knoll OWF DCO. Like the proposed development the Triton Knoll OWF only involved the provision of wind turbines and associated infrastructure out at sea and did not include a link back to the mainland which was provided separately. Burbo Bank Extension OWF is within 12nm of MLWS, while Triton Knoll OWF is beyond that.

- 24.2.12. The applicant's "*clear position*" [REP1-088, paragraph 31] is that land beyond 12nm of MLWS is not capable of ownership, and therefore cannot be considered to be 'land' under the PA2008. It maintained that the rights enjoyed by The Crown Estate (TCE) could not be considered Crown 'interests' under international law. That being the case a book of reference is not relevant or necessary.
- 24.2.13. The applicant explained that as there is no 'land' there can be no 'Crown land' as 'Crown land' is a sub-set of 'land'. However, on a precautionary basis, and given the absence of a definition of 'Crown land' in the PA2008, the applicant included a 'Crown Land Plan' and this was included within the early versions of the draft (dDCO), up to the submission at deadline (D) 5 [REP5-002].
- 24.2.14. The applicant took the view that in light of the Agreement for Lease (AfL) between the applicant and TCE the TCE has effectively confirmed its satisfaction with the proposed development and that the provision of a book of reference would be nugatory.

THE CASE FOR INTERESTED PARTIES

- 24.2.15. The only representation on this issue came from TCE in its response [REP3-077] to ExQ1GEN2 [PD-011]. TCE agreed with the applicant that there is no 'land', and that "*the seabed that is included in the limits of the [Order] is not 'land' for the purposes of [s]235 of the [PA2008]*". It also stated that there was no need for a book of reference.
- 24.2.16. TCE also confirmed that the necessary rights and interests in the offshore Crown land required are dealt with in the AfL.

ExA's considerations on land rights

- 24.2.17. Although as a matter of law the question of whether the application site represents 'land', and thus 'Crown land' is for the Secretary of State (SoS) and ultimately the Courts, we have provided the following analysis to assist the SoS.
- 24.2.18. Under section (s) 227(2) of the PA2008, 'Crown land' is land in which there is a Crown interest or a Duchy interest. It is therefore clear that to be 'Crown land' the area in question must be 'land' in the first place. Under s235 'land' "*includes buildings and monuments, and land covered with water, and in relation to Part 7 must be read in accordance with section 159*". Part 7 deals with orders granting development consent, with s159 confirming that 'land' includes any interest in or right over land.
- 24.2.19. There is therefore nothing on the face of the PA2008 to indicate whether 'land' can only be within the territorial seas (up to 12nm from MLWS) or can continue beyond.
- 24.2.20. However, we agree with the applicant for the reasons it gives that a distinction can be made between the territorial sea area up to 12nm from MLWS and that beyond to the limit of the EEZ. This is enshrined in

UNCLOS. As the application site lies beyond the territorial seas where *“the rights and jurisdiction of the coastal State”* (article 55) are governed by the relevant provisions of the Convention.

- 24.2.21. The rights and jurisdictions are set out in article 56 and are set out in paragraph 24.2.8. Article 56(3) notes that the rights of the seabed and subsoil shall be exercised in accordance with Part VI (Continental Shelf).
- 24.2.22. In our view, this means that for the purposes of the PA2008, the application site (or at least the seabed thereof) does not represent ‘land’. As ‘Crown land’ is a sub-set of ‘land’, then this cannot be ‘Crown land’ either.
- 24.2.23. There is then no requirement for a book of reference as there is no land to reference and the ‘Crown land’ plan becomes redundant. As part of our proposed changes to the dDCO set out in [\[PD-019\]](#) we therefore recommended that the Crown Land plan was deleted from schedule 8, and this the applicant did at its changes at D5a [\[REP5a-002\]](#).
- 24.2.24. TCE has confirmed that the AfL ensures that, if granted, the DCO can be implemented. There is, therefore, no impediment from a land rights aspect to the grant of the DCO.

24.3. RIGHTS TO GRANT SUB-LEASE

- 24.3.1. As set out in chapter 9 (commercial fisheries), we received representations from Bodorgan Marine Limited (BML) as to whether the applicant had sufficiently made provision for the use of the site for aquaculture. BML were not an Interested Party since it did not make a relevant representation at the appropriate point in time. However, we allowed it to make representations on the basis it considered its interests may be affected and there would be sufficient time within examination for the representations to be responded to and considered.
- 24.3.2. Within BML’s representations [\[REP4-068\]](#), paragraphs 25 to 28] and [\[REP6-055\]](#), paragraphs 5 to 50] were various submissions about the ability or otherwise for TCE to lease the application site for purposes other than energy production, and for the applicant to sub-lease its lease to BML.
- 24.3.3. In relation to this last matter, we asked TCE in ExQ3CF1 [\[PD-018\]](#) whether the AfL would allow the applicant to sub-lease the application. In its response [\[REP3-075\]](#) TCE confirmed that if and when a Lease pursuant to the AfL is entered into, it *“will only grant rights pursuant to Section 84 of the Energy Act 2004”*. TCE continued: *“The Section 84 rights do not extend to the rights sought by BML which do not relate to (nor are they in connection with) the exploitation of the [UK Renewable Energy Zone] REZ to produce energy from water or winds (or related exploration)”*.
- 24.3.4. It is therefore clear to us that under the proposed terms of the lease pursuant to the AfL the applicant would not be able to grant a sub-lease for aquaculture.

- 24.3.5. In the alternative, BML then suggests [\[AS-013\]](#) another “*appropriate body*” could grant those rights, whether TCE or some other entity. “*BML is asking only for the TCE lease to the Applicant to contain provisions that do not preclude aquaculture in the future, which is just a matter of drafting*”.
- 24.3.6. However, this is a matter for TCE as part of its leasing arrangements and is not for consideration under the PA2008. To seek to re-open the leasing arrangements or put additional provisions within the dDCO would inevitably delay the delivery of the proposed development as part of meeting Clean Power Action Plan 2030, and in our view would not be justified, particularly as it is not clear whether TCE or another body could grant such rights in any event.
- 24.3.7. It is also the case that the effects of aquaculture have not been assessed as part of the environmental statement and may well have other environmental implications that should be evaluated.
- 24.3.8. Furthermore, at present we only have the assertions of BML that the application site would be suitable for aquaculture, and providing a co-location with aquaculture may have compatibility issues with other stakeholders who would have legitimate concerns that they would wish to have heard. In our view, to impose this provision at this stage could be contrary to article 6 under the Human Rights Act (see paragraph 24.4.3.) since those other stakeholders may have wished to raise issues about the proposal, not be aware about it due to the stage in the examination process at which it was raised and thus be prejudiced.

ExA’s considerations on rights to grant sub-lease

- 24.3.9. In our view, if BML, or any other aquacultural operator, wishes to pursue this matter further, they should take this up outside the DCO process.

24.4. HUMAN RIGHTS

- 24.4.1. In making their decision on the application the SoS is required to comply with the Human Rights Act.
- 24.4.2. In this case there would be no interference with the rights of individuals in respect for their private and family life, their home and correspondence (article 8).
- 24.4.3. Insofar as any person would be affected, this PA2008 process, including the examination, would ensure that there was compliance with article 6 which allows those affected to a fair and public hearing.
- 24.4.4. Article 1 of the first protocol entitles every natural or legal person to the peaceful enjoyment of their possessions. However, these rights are not absolute and can be affected, or even deprived, in the public interest, subject to the conditions provided for by law. We are satisfied, insofar as the proposed development would affect any natural or legal persons enjoying

their possessions, that the public interest of the production of decarbonised energy at the level proposed would outweigh those rights.

24.5. PUBLIC SECTOR EQUALITY DUTY

- 24.5.1. The Equality Act 2010 established a duty, the Public Sector Equality Duty (PSED), to eliminate discrimination, advance equality of opportunity and foster good relations between persons who share the defined protected characteristics and persons who do not. The PSED is applicable to us as examining authority in the conduct of this examination and reporting, and to the SoS in decision making.
- 24.5.2. Our examination allowed participation by various methods, written, online via video link and in person at venues with appropriate access provision. We are not aware of any person who was prevented from participating in the examination because of any protected characteristic.
- 24.5.3. We are satisfied that the proposed development would not give rise to differential effects on any person with any protected characteristics as set out in the Equality Act 2010.

25. DRAFT DEVELOPMENT CONSENT ORDER AND RELATED MATTERS

25.1. INTRODUCTION

- 25.1.1. The accepted application included a draft development consent order (dDCO) [APP-012] and associated explanatory memorandum (EM) [APP-013]. The application dDCO and subsequent iterations are in the form of a Statutory Instrument.
- 25.1.2. In our Rule 6 letter [PD-007] we made a procedural decision to hold an issue specific hearing (ISH) on the dDCO on the day after the Preliminary Meeting (PM) (assuming the PM was closed); this occurred on 24 October 2024. The Rule 6 letter included both an agenda for the ISH (in Annex F) and our 'Initial Observations on Drafting of the dDCO' (Annex F(i)).
- 25.1.3. These initial observations related both to minor matters, such as typographic corrections and clarity, but also matters with more substance.
- 25.1.4. Prior to the ISH the applicant submitted a revised dDCO in both 'clean' [PD1-002] and 'tracked change' [PD1-003] versions, together with a 'Schedule of Changes to the Draft Development Consent Order' [PD1-006] and revised versions of the EM [PD1-004 and PD1-005]. These were discussed at ISH1 [EV3-001 to EV3-008].
- 25.1.5. Following the ISH, the applicant submitted revised versions of both the dDCO [REP2-002] and EM [REP2-004]. These 'tracked change' version of both documents referred back to the versions submitted with the original application. Subsequent 'clean' versions of these documents only had 'tracked change' from the previous iteration.
- 25.1.6. The dDCO and supporting EM, were updated several times during the course of the examination. This chapter provides an overview of the changes made to the dDCO during the examination process, between the application dDCO [APP-012] and the final dDCO [REP6-002], submitted at deadline (D) 6.
- 25.1.7. Our recommended Development Consent Order (rDCO), which can be found in Appendix E, incorporates the changes made during the examination and additionally those which we consider should be made as a result of our findings on the matters discussed within this report. These latter changes are set out in Table 11 and Table 12 below.
- 25.1.8. We do not report on every change made in the updated versions. This is because, during the course of the examination, amendments were made as a result of typographical or referencing errors, slight revisions of the wording following either discussion between the applicant and relevant interested parties (IP) or from their written submissions, or as a result of changes following the Rule 6 letter [PD-007], our written questions [PD-011, PD-015,

[PD-018](#)], Rule 17 letters [[PD-013](#), [PD-014](#), [PD-020](#), [PD-021](#)] or discussions at the various ISHs.

25.1.9. On 25 March 2025 we issued our ‘Proposed Changes to the dDCO’ [[PD-019](#)]. These did not include all matters that remained in dispute, but only those matters where we considered we had sufficient information at that date to allow us to provisionally come to a conclusion, or where we had identified typographic errors in the previous D5 [[REP5-002](#)] version. The applicant and other IPs were given the opportunity to make comments on these at D5a (8 April 2025) and D6 (15 April 2025).

25.1.10. We report on the substantive changes made during the examination, even when they were agreed between the applicant and IPs so that the Secretary of State (SoS) is appraised of the reasons for them. We are, however, satisfied that the changes do not alter the overall substance of the proposed development.

25.1.11. The structure of this chapter is as follows:

- structure and functions of the dDCO as applied for
- examination of the dDCO and its iterations during the examination
- a discussion of the main points in contention at the end of the examination and those of particular interest
- recommended changes leading to the recommended draft DCO (rdDCO)
- other consents and legal agreements

25.2. THE ORDER AS APPLIED FOR

25.2.1. While the number of articles and schedules, including protective provisions (PP) in the dDCO changed during the examination, its overall structure remained. The final version of the dDCO submitted at D6 [[REP6-002](#)], henceforth referred to as the “preferred DCO” is briefly described here with a fuller explanation, as given by the applicant, in the final version of the EM [[REP6-004](#)].

- part 1 (preliminary): articles 1 and 2 set out how the development consent order (DCO) may be cited, when it would come into force and the meaning of various terms used in the Order
- part 2 (principal powers): articles 3 to 7 would grant development consent for the proposed development, would allow it to be used as a generating station, provide for the deemed marine licence (DML) under the Marine and Coastal Access Act 2009 (MCAA), and provide powers to maintain the proposed development. Article 7 sets out who has the benefit of the Order and how that benefit can be transferred
- part 3 (miscellaneous and general): articles 8 to 16 provide powers in relation to abatement of works abandoned or decayed, provisions relating to Trinity House and the Crown, give effect to the PPs, certification of documents and plans, and deal with the service of notices, requirements and appeals, arbitration and approvals. Article 17 modifies the Air Navigation Order 2016 so as to apply to the application site and article 18

provides for the delivery of the ‘without prejudice’ scheme of compensation for the effects on a number of European sites

25.2.2. There are 8 schedules to the preferred DCO which would provide for:

- schedule 1: the authorised project
- schedule 2: the requirements applying to it
- schedule 3: protective provisions
- schedule 4: approval of matters specified in requirements (including appeal mechanisms)
- schedule 5: arbitration rules
- schedule 6: the deemed marine licence
- schedule 7: compensation measures (included on a ‘without prejudice’ basis)
- schedule 8: documents to be certified

25.3. EXAMINATION OF THE dDCO

25.3.1. We examined the dDCO in 2 ISHs (ISH1 [[EV3-001](#) to [EV3-008](#)] and ISH4 [[EV6-001](#) to [EV6-005](#)]) as well as through our initial comments (Annex F(i) to the Rule 6 letter [[PD-007](#)]), and written questions [[PD-011](#)], ExQ2 [[PD-015](#)], ExQ3 [[PD-018](#)] and our Rule 17 letters [[PD-013](#), [PD-014](#), [PD-020](#), [PD-021](#)].

25.3.2. The applicant’s response was set out in various documents; both following the above events and as a response to representations made by IPs.

ITERATIONS

25.3.3. During the examination the applicant sought to make various changes to the dDCO. There were 7 versions of the dDCO up to the close of the examination. Table 9 sets out the version number, dates of the submission and examination event, along with the examination library (EL) numbers of the clean and tracked change versions.

Table 9: DCO History of draft Development Consent Orders

Date	Version	Event	‘Clean’ version EL reference	‘Tracked Change’ version EL reference
31 May 2024	01	As originally submitted	[APP-012]	
15 October 2024	02	In response to Rule 6 letter	[PD1-002]	[PD1-003]
12 December 2024	03	D2	[REP2-002]	[REP2-003]

Date	Version	Event	'Clean' version EL reference	'Tracked Change' version EL reference
18 February 2025	04	D4	[REP4-002]	[REP4-003]
11 March 2025	05	D5	[REP5-002]	[REP5-003]
8 April 2025	06	D5a	[REP5a-002]	[REP5a-003]
15 April 2025	07	D6	[REP6-002]	[REP6-003]

25.3.4. At D2 the applicant provided the 'Spirit and Harbour Protective Provisions Plan' which the applicant proposed would become a certified plan under article 12. This plan was updated at D6 [\[REP6-008\]](#). This is explored further below.

25.3.5. There were also versions of the EM, provided both in clean and tracked change, and a Schedule of Changes (SoC) to the dDCO. These are shown in Table 10.

Table 10: History of EM and SoC

Date	Event	EM		SoC to dDCO
		'Clean' version EL reference	'Tracked Change' version EL reference	
31 May 2024	As originally submitted	[APP-013]		
15 October 2024	In response to Rule 6 letter	[PD1-004]	[PD1-005]	[PD1-006]
12 December 2024	D2	[REP2-004]	[REP2-005]	[REP2-006]
18 February 2025	D4	[REP4-004]	[REP4-005]	[REP4-006]
11 March 2025	D5	[REP5-004]	[REP5-005]	[REP5-006]
8 April 2025	D5a	[REP5a-004]	[REP5a-005]	[REP5a-006]

Date	Event	EM		SoC to dDCO
15 April 2025	D6	[REP6-004]	[REP6-005]	[REP6-007]

25.4. MATTERS IN CONTENTION AND OF INTEREST

- 25.4.1. This section deals with those matters which remained in contention at the end of the examination. It also deals with novel provisions and matters which we consider are of particular relevance to the drafting of a final DCO should the SoS be minded to grant consent and make the Order. Towards the end of this section are Table 11 and Table 12 which set out the recommended changes to the preferred DCO as discussed in this report. Due to the number of changes to Parts 2 and 3 of Schedule 3 (PPs) these are set out separately in appendix D to this report.
- 25.4.2. Table 11 deals with all proposed changes apart from those relating to Habitats Regulations Assessment (HRA). Table 12 deals with those which flow from our view as to HRA.
- 25.4.3. We have also provided 3 alternatives to Table 12 depending on the SoS's conclusions on the HRA. These 3, Table 13, Table 15 and Table 14 are further explained below.
- 25.4.4. The most significant disputes between parties at the end of the examination concerning drafting related to article 7, Benefit of the Order, where the Marine Management Organisation (MMO) sought to limit the powers sought, in relation to the drafting of requirement (R) 8 relating to Primary Surveillance Radar at Warton Aerodrome, and in relation to PPs where Spirit Energy Production UK Limited (Spirit) and Chrysaor Resources (Irish Sea) Limited, a subsidiary of Harbour Energy PLC (Harbour) sought somewhat different PPs from those proposed by the applicant.

ARTICLES

Article 7 – Benefit of the Order

- 25.4.5. This article would allow the undertaker (the applicant) to transfer the benefit of both part or all of the Order and the DML under schedule 6 to another person, and also to grant a lease to another person for a period of time. In each case the agreement of the third party has to be demonstrated. Such a transfer requires the written consent of the SoS unless the transferee holds a licence under section 6 of the Electricity Act 1989.
- 25.4.6. In respect of the DML the SoS must consult the MMO before giving such a consent.
- 25.4.7. Where the benefit is so transferred, then that third party assumes all rights and obligations under the order for any matter after the transfer. There are also provisions for notification of the transfer.

- 25.4.8. There are specific provisions to disapply s72(7) and (8) of the MCAA which normally deal with transfers of marine licences.

The case for the applicant

- 25.4.9. The applicant explained in the EM [\[REP6-004\]](#) that the article is necessary to allow the undertaker commercial flexibility to sell or lease the authorised development while ensuring that the SoS still retains control over such a disposal (through the need to obtain consent where the disposal is not to another license holder). Without the ability to transfer the benefit, no party but the undertaker could operate the generating station without committing a criminal offence.
- 25.4.10. The applicant considered it a matter of practicality that the DCO and the DML can be transferred together using the same process, but also to sub-divide the proposed development. Under the Electricity Act 1989, there are regulatory requirements to separate interests in the electricity market between ‘generation’ and ‘transmission’ (see also paragraphs 2.3.8 to 2.3.13 of this report).
- 25.4.11. The applicant noted that this would follow precedent orders and cited Sheringham and Dudgeon Extensions (article 5), Awel y Môr (article 6), Hornsea Four (article 5), East Anglia 1N (article 5) and Triton Knoll Generation (article 6).

The case for the Marine Management Organisation

- 25.4.12. The MMO objected to the inclusion of the transfer of the DML in this provision. This is set out fully in section 3.1 of the MMO’s D2 submission [\[REP2-035\]](#). In short form, the MMO considered that parliament has provided a statutory regime for such a process, and this should be followed. The MMO was *“also unclear what criteria the SoS would be taking in determining whether to approve any transfer”* and how this would differ from a consent granted by the MMO.
- 25.4.13. In its D5 submission [\[REP5-075\]](#) the MMO reiterated these objections, and while noting that transfer had occurred in previous DCO the reasoning for this had not been, in its view, explained clearly. It also noted that it had made comments in the examination for the Rampion 2 offshore windfarm (OWF). The MMO stated that *“the SoS has no powers post consent to vary the DML. So, should the Article remain as drafted and although the SoS has approved a transfer of benefit the DMLs will still set out who the undertaker is”*.
- 25.4.14. Notwithstanding its objection in principle, the MMO also objected to certain wording, particularly in article 7(3), on the basis that the SoS is not obliged to take into account the MMO’s views before giving consent. It considered it *“highly irregular that a decision to transfer a licence should not be the decision of the regulatory authority in that area”* but *“subject to such a cursory process”* and considered the process *“unworkable”*.

- 25.4.15. The MMO also referred to Planning Inspectorate Advice Note 11, Annex B, which the MMO stated indicates the DML should, wherever possible, be generally consistent with those issued independently by the MMO.

ExA's considerations on Article 7

- 25.4.16. In our Rule 17 letter of 10 February 2025 [PD-013] we asked the MMO whether the powers relating to marine licences were transferred to or delegated to it. In its response [REP4-064] at point 17.1.10 the MMO confirmed it acts under delegated authority from the SoS.
- 25.4.17. On 4 April 2025 the SoS granted the Rampion 2 OWF DCO. This included powers to transfer the benefit of that order and to grant benefit for a temporary period under article 5. In the first bullet point of paragraph 9.1 of the decision letter the SoS also noted an amendment to the drafting which he used in making the order. In our Rule 17 letter of 10 April 2025 [PD-020] we asked the MMO and the applicant for comments on this decision and the MMO specifically whether, in light of that decision, it was still maintaining its objection.
- 25.4.18. In response, the MMO [REP6-046] paragraph 8.2.2 maintained its position *“mainly as the SoS has no power to vary the DML one consented therefore a variation would still have to take place and potentially cause enforcement issues”*.
- 25.4.19. The applicant took the view [REP6-041], point 17.2.4 that the SoS had *“definitively consider[ed] the matter”* and concluded it should remain *“because it does not just deal with deemed marine licenses, but all other licences required to construct the Proposed Development, and the purpose of the [Planning Act 2008] PA2008 is to provide a simple one-stop shop process for obtaining consent for national infrastructure projects and to have one legal instrument, the Recommended Order, as its control”*. It did, however, change the drafting, article 7(3), in line with the Rampion 2 DCO, to require the SoS to consult with the MMO before exercising the power.
- 25.4.20. We note that the drafting of the preferred DCO is slightly different from the cited DCOs in that the power which would allow the transfer of the DML, or its grant for a temporary period, is included within the more general powers to change the benefit of the order, rather than in a separate sub-article. In our view this makes no material difference.
- 25.4.21. We are firmly of the view that the power should remain in any DCO granted. This is for a number of reasons.
- 25.4.22. Firstly, as a matter of statutory construction. As the MMO admitted, the MMO's powers to make and vary marine licences are delegated from the SoS. Legislation is generally written, and within the MCAA specifically, to give powers to 'the secretary of state' rather than a specific SoS. While this is done to allow for changes within the machinery of government, this also means that one secretary of state can act for another. Furthermore, it is also the case that any person who delegates a power to another can always

undertake the power themselves if they wish. Thus, there is nothing to prevent any SoS granting, or varying, a marine licence in their own right.

- 25.4.23. Secondly, the PA2008 is, as quoted by the applicant and as the SoS said in the Rampion 2 decision letter, to provide a one-stop shop. To not allow a transfer to a third party at the same time as making other transfers could lead to unnecessary delays and complications.
- 25.4.24. Thirdly, as the applicant explained at ISH1 ([[EV3-002](#)] at 00:17:28:25 - 00:18:04:22 and [[EV3-004](#)] at 00:53:31:00 - 00:54:12:03), due to the provisions of the Electricity Acts, it will be required to dispose of any elements of the transmission apparatus within the proposed development to a separate company. This is likely to include part of the equipment within the offshore substation platforms (OSP) and could include any cabling between two OSPs. Putting an appropriate provision into the DCO to ensure that this can be facilitated easily makes sense.
- 25.4.25. Fourthly, we note that article 7(11) would disapply section (s) 72(7) and (8) from the MCAA, other than requiring the MMO to change the name on the DML. This would have the effect of ensuring that there was no complementary, but potentially confusing, provision within the MCAA to allow the transfer.
- 25.4.26. Finally, although the drafting of the DML may include some different wording, it would be 'generally consistent' with those granted by the MMO itself.

Article 16 – Approvals

- 25.4.27. This article was added following our proposed changes to the DCO [[PD-019](#)]. Up to that time there was a mixture of some approvals and notifications within the various schedules to the dDCO being required in writing and some not. There was also some ambiguity as to how amendments could be dealt with and requirements to implement approved details. To avoid these issues, we considered that they should all be consolidated in one provision.
- 25.4.28. This led to two of the Rs, R11 and R12, in the original dDCO [[APP-012](#)] being deleted and to various minor drafting changes as they would have otherwise resulted in duplication.
- 25.4.29. It should also be noted that some IPs, particularly Spirit and Harbour did not realise that this had been recommended and subsequently changed in relation to the PP they submitted at D6. For example, the additional drafting removed the need for the phrase “*in writing*” to be included in the relevant parts of schedule 4.

Article 17 – Modification of the 2016 Order and Requirement 3 – Aviation Safety

- 25.4.30. As explained in the EM “*this article modifies Article 223 (Lighting of wind turbine generators in United Kingdom territorial waters) of the Air Navigation Order 2016 (the “2016 Order”) so that it applies to the authorised project.*

Without any such modification, Article 223 would only apply to wind turbine generators located in territorial waters (i.e. within 12 nautical miles of shore)”.

- 25.4.31. This provision is novel, and follows a discussion at ISH4, see Action Point 26 in the ‘Applicant’s Response to Actions arising from Issue Specific Hearings 2, 3 and 4’ [\[REP4-061\]](#), question ExQ3DCO1 in [\[PD-018\]](#) and the applicant’s response [\[REP5a-056\]](#).
- 25.4.32. There was no dispute that appropriate lighting needed to be installed on the wind turbine generators (WTG) through a scheme controlled under R3 to ensure aviation safety. It is supported by the Civil Aviation Authority (CAA), the Ministry of Defence (MoD) and the Defence Infrastructure Organisation (DIO) and a requirement to this effect has been contained within numerous DCOs, for example Sheringham and Dudgeon Extensions (R10), East Anglia 1 North (R31) and Norfolk Boreas (R12).
- 25.4.33. However, what appears not to have been realised before was that the relevant provision of the Air Navigation Order 2016, article 223, is spatially limited so that it only applies to a WTG *“which is situated in waters within or adjacent to the United Kingdom up to the seaward limits of the territorial sea”*. This means this provision would not apply to the application site which is more than 12 nautical miles (nm) from mean low water springs (MLWS).
- 25.4.34. S120(5) of the PA2008 allows for a DCO to include provisions modifying other statutory provisions which relate to any matter for which provision may be made in the order or which may appear to the SoS to be necessary or expedient for giving full effect to any other provision of the order.
- 25.4.35. This article would therefore extend the territorial extent of the Air Navigation Order 2016 to include the application site. This would ensure that appropriate lighting is provided and, while this is ultimately a matter for the SoS, we consider the provision to be appropriate.

Article 18 and Schedule 7 – Compensation measures

- 25.4.36. This article was included by the applicant on a ‘without prejudice’ basis in line with paragraph 5.4.28 of the Overarching National Policy Statement for Energy (NPS EN-1) ‘without prejudice’ to its case that the proposed development would not, adversely affect the integrity of any national site network sites, in relation to Part 1, the Morecambe Bay and Duddon Estuary SPA (MBDE SPA) and Ramsar and Ribble and Alt Estuaries (RAE) SPA and Ramsar, with particular reference to lesser black-backed gull, and in relation to Part 2 the Liverpool Bay / Bae Lerpwl SPA (Liverpool Bay SPA) in respect of red-throated diver. This is discussed more fully in chapter 22 and in appendix C. Part 2 was added by the applicant following our request in ExQ1HRA15 [\[PD-011\]](#) at D4.
- 25.4.37. We have identified a number of permutations for the necessary provisions in the dDCO depending on the SoS’s appropriate assessment of the implications of the project for the three sites, in view of their conservation objectives. It would also depend on whether the SoS is satisfied that, there

being no alternative solutions, the project must be carried out for imperative reasons of overriding public interest (IRoPI) notwithstanding a negative assessment of the implications for the site. If the SoS as the competent authority concludes that there are IRoPI, they would then be required to secure any necessary compensatory measures to ensure that the overall coherence of the national site network is protected.

25.4.38. In our view, there are four potential options:

- i. compensation is only required for potential Adverse Effects on Integrity (AEoI) of the MBDE SPA and Ramsar site and RAE SPA and Ramsar site (part 1 of schedule 7) – this is our recommendation
- ii. compensation is required for the potential AEoI on both the MBDE SPA and Ramsar site and RAE SPA and Ramsar Site (part 1 of schedule 7) and the Liverpool Bay SPA (part 2 of schedule 7)
- iii. no compensation is required
- iv. compensation is only required for the potential AEoI on the Liverpool Bay SPA (part 2 of schedule 7)

Compensation for AEoI on MBDE SPA and Ramsar site and RAE SPA and Ramsar site

25.4.39. In the ‘Outline Compensation Implementation and Monitoring Plan’ document [\[REP5a-013\]](#) submitted at D5a the applicant noted that *“the Applicant is proposing to commence the measures at Steep Holm in 2025, ahead of a decision from the Secretary of State (SoS) as to whether such measures would be required”*.

25.4.40. In our Rule 17 letter [\[PD-020\]](#) we queried with the applicant whether the dDCO needed a provision relating to anticipatory steps towards compliance with any provision within the order. Otherwise, works undertaken prior to the order being made would be considered to be within the baseline rather than providing compensation.

25.4.41. At D6 the applicant provided an additional provision, article 18(2). This ensures that any anticipatory steps taken towards compliance with schedule 7 would be taken into account for the purposes of determining compliance with that provision.

25.4.42. In the EM the applicant noted that this type of anticipatory provision has not, to its knowledge, featured in any offshore wind DCO, but similar language has occurred in relation to DCO requirements in other types of DCO. The applicant cited The A122 (Lower Thames Crossing) Development Consent Order 2025 (schedule 2, part 2, R25) as an example.

25.4.43. The decisions on this are for the SoS. As set out in chapter 22 we have concluded that we are unable to exclude AEoI due to adverse effects on the lesser black backed gull qualifying feature of the MBDE SPA and Ramsar site and RAE SPA and Ramsar site.

- 25.4.44. If the SoS agrees with us in this regard and considers that there are no alternative solutions and the project must be carried out for reasons of IROPI then our recommendation is that the preferred DCO should be made in this respect in the form provided by the applicant [[REP6-002](#)], but without part 2 of schedule 7. This is what is set out in our rdDCO provided at appendix E.

Compensation for effects on Liverpool Bay SPA

- 25.4.45. In light of our recommendation that no WTGs be located within 7.5 kilometres (km) of the original Liverpool Bay SPA, which is to be secured by amending R2 (design parameters) and condition 1 of the DML, we are satisfied that the proposed development would have no AEol on that site. Therefore, part 2 of schedule 7 is not required. This is set out as Table 12.
- 25.4.46. However, as is discussed in chapters 22 and 23 should the SoS consider, for any reason, that development was to be permitted within 7.5 km of the original Liverpool Bay SPA, or they consider that even at this distance there would be an AEol, then they would need to consider, whether there are no alternative solutions, whether the project must be carried out for reasons of IROPI and what the compensatory measures are that must be secured to ensure the overall coherence of the national site network. Should the SoS consider that this is the case, part 2 of schedule 7 would need to be retained. This is set out as Table 13.
- 25.4.47. Similar situations would apply should the SoS conclude that different distances were appropriate. In that situation we leave it to the SoS to amend R2 and condition 1 accordingly.

Alternative approaches depending on SoS's conclusion on effects on MBDE SPA and Ramsar site and RAE SPA and Ramsar site or Liverpool Bay SPA

- 25.4.48. Should the SoS, contrary to our recommendation, agree with the applicant that the proposed development would not adversely affect the integrity of the MBDE SPA and Ramsar site and RAE SPA and Ramsar site, then part 1 of schedule 7 is not required. If the SoS were also to conclude that there was no AEol for the Liverpool Bay SPA as well, then article 18 and schedule 7 would need to be omitted in their entireties. This is set out as Table 14.
- 25.4.49. The final option that we have identified where compensation would be required is if the SoS were to conclude that the proposed development would not adversely affect the integrity of the MBDE SPA and Ramsar site and RAE SPA and Ramsar site, but would adversely affect the integrity of the Liverpool Bay SPA. If they also considered that there are no alternative solutions and the project must be carried out for reasons of IROPI and that the identified compensatory measures must be secured to ensure the overall coherence of the national site network, then part 1 of schedule 7 would need to be deleted, and part 2 renamed. This is set out as Table 15.

Project-alone or strategic compensation

- 25.4.50. Under paragraph 2 of part 1 and paragraph 2 of part 2 of schedule 7 the applicant can elect to provide compensation either through a strategic compensation fund or on a project-alone basis.
- 25.4.51. While we appreciate that strategic compensation is being delivered (particularly for the effects on lesser black-backed gull), in our view at this time there should be a hierarchical approach. This would mean that the project-alone schemes, as identified, being delivered if possible. Only if this does not prove to be the case should the option of the strategic compensation come into play.
- 25.4.52. We are therefore recommending that the drafting of paragraph 2 in part 1 (and in part 2 were the SoS to retain it for any reason) should be amended to deliver this hierarchy. This is given in each of Table 12 to Table 15.

Additional article – Funding

- 25.4.53. As discussed in paragraph 25.4.95 below, in order to ensure that the applicant has sufficient resources to provide compensation under the PPs we consider an additional article is required. We have utilised drafting based on that set out in article 32 of the Mona Offshore Wind Farm Order. The SoS should note that this provision has not been canvassed with any party during the examination, and the SoS may wish to consult on this. However, given that the drafting is based on precedent, and that it would provide no greater obligation than that as set out in the preferred DCO, we do not consider that this is necessary.

SCHEDULES

Schedule 2 – Requirements

Introduction

- 25.4.54. This section will only go through requirements that were seen as controversial or where there were substantive issues raised which had not been resolved by the end of the examination. Except where stated we consider that each requirement as drafted meets the tests for requirements and would be justified.

Requirement 1 – Time limits

- 25.4.55. Under the preferred DCO the applicant set out a 7 year commencement period. This is more than the standard 5 years set out in regulation 6 of the Infrastructure Planning (Interested Parties and Miscellaneous Prescribed Provisions) Regulations 2015 and led to us asking questions of the applicant in ISH1 [\[EV3-001\]](#) to justify this period.
- 25.4.56. The applicant responded (see written analysis in [\[REP1-085\]](#) in ID1(8) to (12)) that this was due to the milestones, including the contract for difference (CfD) auctions and the need for a consented transmissions asset scheme, that have to be met post-consent. The applicant indicated that there is no

need to suggest that a CfD auction would be unsuccessful, but the 7 year period was a fallback. It set out 2 Gantt charts [\[REP1-086\]](#) based on 'realistic expected' and 'delayed' scenarios.

- 25.4.57. We note that, even in the 'delayed' scenario, commencement would take place within 5 years and we indicated at ISH4 [\[EV6-002\]](#) at 00:30:38:18 - 00:30:53:09] that we were not convinced by the arguments for 7 years.
- 25.4.58. No more substantive information was put into the examination, and we remain of the view that, in line with normal procedures, and given the importance of meeting the target of 50 gigawatts of offshore wind by 2030 as set out in paragraph 3.2.1 of NPS EN-1 and the Clean Power Action Plan 2030, that the commencement period should be 5 years. We are making a recommendation to this effect.
- 25.4.59. However, in the event that the SoS disagrees with us in relation to the effect on the adjoining oil and gas installations so that the oil and gas installations would retain priority after 1 January 2029 then the 7 year commencement period would be appropriate. This is because it may be longer than 5 years until the applicant could or may want to implement the DCO so that it could be completed in a single construction programme.
- 25.4.60. We also consider that extending the implementation time limit by a year in the event of a legal challenge would not be necessary. There is no reasoning for it in the EM and if this were to be a standard provision we would have expected it to be in the Infrastructure Planning (Interested Parties and Miscellaneous Prescribed Provisions) Regulations 2015. We are therefore recommending it be deleted.

Requirement 2 – Design Parameters

- 25.4.61. This provision sets out the overall design parameters of the proposed development. There were a few changes during the examination, principally to deal with clarity, for example, there would be 'one or two' OSPs rather than 'up to two', or in response to comments from bodies like the MMO or Natural England (NE), for example, relating to maximum hammer energy.
- 25.4.62. By the end of the examination, there were no outstanding issues remaining between parties, and we have no reason to depart from this.
- 25.4.63. However, for the reasons set out in chapters 22 and appendix C, we consider that development should be restricted so that no WTGs or OSPs are permitted within 7.5km of the original Liverpool Bay SPA. We are recommending this is secured by adding an additional provision preventing WTGs in this area. The coordinates of the points have been taken from the 2010 designation of the Liverpool Bay SPA document which can be found from the link in the second part of table 2 of NE's 'Appendix B10: Natural England's comments on Offshore Ornithology' [\[REP5-078\]](#) (<https://publications.naturalengland.org.uk/publication/3236717>).

Requirement 4 – Great Dun Fell, Lowther Hill and St Annes Primary Surveillance Radars

Requirement 5 – Operation of Blackpool Airport

Requirement 6 – Operation of Walney Aerodrome

Requirement 7 – Operation of Warton Aerodrome

Requirement 8 – Warton Aerodrome Primary Surveillance Radar

Requirement 9 – Air Traffic services at Isle of Man airport

- 25.4.64. All of these requirements were amended during the examination following discussions between the applicant and the respective operators. By the end of the examination, all the terms were agreed except for a single point in relation to R8 (Warton Aerodrome). This is also discussed further in chapter 6 (Civil and Military Aviation and Radar).
- 25.4.65. The point of disagreement relates to whether an additional sub-paragraph should be included relating to cessation of the operation of the proposed development of the approved radar mitigation scheme (ARMS). The case for its inclusion, made by BAE Systems Operations Limited (BAE Ops), is set out in [\[REP6-069\]](#).
- 25.4.66. The additional provision would, upon notification of “*any failure*” of the ARMS by the operator, require the undertaker to tether the proposed development until the operator has, at its cost, undertaken repairs and corrective measures, which then need to become operational. This is covered in chapter 11 of this report, where we conclude that the additional sub-paragraph is not necessary.
- 25.4.67. Beyond this, we consider all these requirements to be necessary and properly drafted.

Requirement 10 – Decommissioning

- 25.4.68. A number of IPs, including NE [\[REP6-046\]](#), considered that there should be a separate outline decommissioning plan as part of the certified documents. The applicant resisted this, noting that there are requirements under s105 of the Energy Act 2004 for such a plan where the SoS so requires.
- 25.4.69. While this requires the SoS to so request the plan, the applicant advised that this is standard practice. Consequently, we are content on this point. This would ensure that the decommissioning of the works would take place promptly at the end of the operational life of the proposed development.
- 25.4.70. The MMO indicated [\[REP6-045\]](#) that in light of the commitment, CO28 in the Commitments Register [\[REP6-032\]](#), to submit the decommissioning programme to the MMO prior to formal submission to the SoS it was content with the arrangements.

Requirement 11 – Port Access and Transport Plan

- 25.4.71. At this stage, as set out in chapter 21, it is not known which port(s) would be used to construct, maintain or decommission the proposed development. This requirement, however, requires a port access and transport plan, which accords with the 'Outline Port Access and Transport Plan' [\[REP5-032\]](#), to be drawn up for when certain specified items to be used in the proposed development are to be transported over land to a port. This applies unless the highway authority for that port area, following consultation with the relevant planning authority, determines otherwise.
- 25.4.72. This plan could require highway works if they are considered necessary. We are content that the requirement is necessary and otherwise proportionate.

Requirement 12 – Skills and Employment Plan

- 25.4.73. Similarly, a skills and employment plan, in accordance with the outline skills and employment plan [\[REP5-040\]](#), is to be submitted to and approved by the planning authority in whose area the marshalling port or operation and maintenance base for the proposed development is to be located.
- 25.4.74. As originally proposed, the skills and employment plan was only to be 'notified' to the relevant planning authority, but we considered that this would allow the applicant to possibly not meet the requirements of the geographic area. We therefore recommended that this be changed [\[PD-019\]](#) to approval, which the applicant included in the final versions of the dDCO [\[REP6-002\]](#).

Schedule 3 - Protective Provisions

- 25.4.75. The PPs are set out in schedule 3. They are given force by article 11 of the preferred DCO. The PPs for the protection of Stena Line Limited was first added at D4 [\[REP4-002\]](#).
- 25.4.76. At ExQ1DCO5 [\[PD-011\]](#) we asked those who would benefit from PPs to set out their current positions and, if not content as then proposed, to set out their alternative drafting. Unfortunately, despite participating in the examination, neither Harbour nor Spirit submitted alternative draftings until D5a, [\[REP5a-078\]](#) and [\[REP5a-076\]](#) respectively. Both IPs indicated that they were liaising with the applicant and submitted a joint statement [\[REP3-101\]](#) setting out their roles and responsibilities, but we were not informed of the extent of the disputes between the parties until D5a.
- 25.4.77. It should also be noted that in ExQ2DCO2 [\[PD-015\]](#), due to the lack of progressed evidenced to us at that time, we requested, if necessary on a 'without prejudice' basis, a potential additional requirement to, effectively replace the PPs. In response the applicant [\[REP5-070\]](#) provided alternative, without prejudice, drafting for the PPs [\[REP5-071\]](#). Spirit [\[REP5-090\]](#) and Harbour [\[REP5-091\]](#) both set out what they considered such a requirement should contain. However, we consider that the provision of PPs is to be preferred and have reported on that basis.

25.4.78. Further, amended, versions of the PPs were submitted at D6 by the applicant [\[REP6-002\]](#), in light of the comments made by Spirit and Harbour. Our commentary on the relevant parts, as is customary, utilises the applicant's drafting as the starting point.

25.4.79. At the end of the examination there was a considerable distance between the applicant and Spirit and Harbour. The following analysis flows from our conclusions set out in chapters 11, 19 and 23 of this report and should be read in that context.

Part 1 — Offshore cables

25.4.80. No representations were submitted in relation to this provision. However, in light of our concluding that the Spirit and Harbour protective provisions plan is not necessary (see paragraph 25.4.105) the drafting needs to be amended to remove reference to this plan. We are recommending it reverts to the text as originally submitted [\[APP-012\]](#).

Parts 2 and 3 – Oil and gas industry

Introduction

25.4.81. In considering the drafting of the PPs, it must be remembered that Spirit currently operates both sites, that is the Calder platform, and the Central Processing Complex (CPC), made up of 3 structures, CPP1, AP-1 and DP-1 which are joined by bridges. However, at cessation of production (COP), Harbour will take over responsibility for the Calder platform with Spirit being responsible for the remainder.

25.4.82. The applicant's drafting has two parts for the individual companies, while that provided by Spirit splits its drafting into three parts, relating to the CPP1 site as it calls it, the Calder site and then in relation to Morecambe Net Zero (MNZ). In our view splitting the PPs as per the relevant sites rather than the relevant owner makes the drafting simpler. We are therefore starting with the applicant's approach but retitling the PPs as per the site rather than the operator. This also involves effectively moving those elements which benefit Spirit in relation to the Calder site from part 3 to part 2.

25.4.83. The title of part 2 becomes 'For the protection of the licensee and duty holder of the Calder Field' and of part 3 becomes 'For the protection of the licensee of licences P.251, P1183 and P.153'.

25.4.84. As set out in chapter 11, we consider that the MNZ works have not yet advanced to a point whereby PP should be made in favour of that licensee. Consequently, references to the 'CCUS licence' have been removed.

25.4.85. The PPs are to ensure that our conclusions reached in chapters 11 and 23 are delivered. In short form they are:

- until 1 January 2029 or, if the development has not commenced by that date, 6 months after the applicant gives notice to the relevant party of its

intention to commence, there should be 3.76nm aviation buffers from the nearest relevant point on the third-party apparatus.

- thereafter, the aviation buffer zone should be 1.9nm from the nearest relevant point on the third-party apparatus.
- a 2nm WTG aviation corridor at 220° measured from true north from CPC.
- a 1.5nm marine buffer around both the Calder platform and the outer edges of the CPC.
- a 1nm WTG marine corridor between the Calder platform and CPC.
- 100m well buffer zones from three legacy and relief tophole locations (DP3 (C1), 110/8-2, and 1008a-C5 (Relief))

25.4.86. One point where the two parts of the PP diverge relates to marine buffer zones. In [\[REP6-002\]](#) the applicant has put a 1.0nm buffer in Part 2 and 1.5nm in Part 3. In the original version of the dDCO [\[APP-012\]](#) both were 1.5nm (which applied to both marine and aviation buffers). They were amended to different distances at D2 [\[REP2-002\]](#) as a result of discussions with the two IPs [\[REP2-006\]](#).

25.4.87. In its RR [\[RR-077\]](#), paragraph 6.4] Spirit states a “*minimum obstruction free radius of 1.5nm surrounding each platform has been requested to deploy spread moored vessels, including heavy lift vessels and drilling rigs into position*”. The applicant agrees to this [\[PD1-011\]](#), RR-077-56].

25.4.88. We can see no reason why there should be two different distances, and therefore are recommending a 1.5nm marine buffer zone for both parts. Like any other matter, this could be amended by agreement between the relevant parties.

25.4.89. The relevant PPs would cease to operate when the SoS has confirmed that the relevant apparatus has been decommissioned.

Financial Compensation

25.4.90. We do consider that financial compensation should be payable by the applicant for additional costs. However, there are two main points.

25.4.91. Firstly, we consider a maximum amount should not appear on the face of the DCO. While we have been provided with alternatives, they are a considerable distance apart:

- the applicant: £3,000,000 for Harbour, £10,000,000 for Spirit [\[REP6-002\]](#),
- Harbour: £3,000,000 to £8,000,000 with tax implications (possibly up to £22,000,000) [\[REP6-063\]](#),
- Spirit: £10,000,000 to £40,000,000 [\[REP6-058\]](#)

25.4.92. In our view, therefore, these are matters which should be properly dealt with, if necessary, through the arbitration process provided for in schedule 5 of the dDCO. This includes the tax position. We appreciate why the applicant would seek a figure on the face of the DCO, principally for its funders, but we consider it should be able to understand its likely liabilities through its advisors.

- 25.4.93. Secondly, we consider that there should be no provision for consequential loss. The main basis for this is Spirit's interpretation of section 9A of the Petroleum Act 1998. We discuss this further in paragraphs 11.3.50 and 11.3.51 of this report.
- 25.4.94. As noted by Spirit [[REP4-070](#), paragraph 2.47], COP is due to take place in 2027 plus or minus 2 years, and as discussed in chapter 11, we consider that as from 1 January 2029, or 6 months after the applicant notifies of its intention to commence if later, the priority should move towards the proposed development. On this basis there is no need for a consequential loss payment nor any indemnities.
- 25.4.95. We consider that appropriate and sufficient financial security arrangements should be in place to ensure that the applicant can provide compensation as required. This was considered during the examination, particularly in light of the proposed transfer of the applicant company to Copenhagen Infrastructure Partners fifth flagship fund (CI V) (see ExQ2GEN1 [[PD-015](#)], ExQ3GEN1 [[PD-018](#)] and our Rule 17 letter [[PD-021](#)]). In light of the responses from The Crown Estate [[REP5a-073](#)] and [[REP6-067](#)] we are satisfied that sufficient provision could be made. However, we consider it should be secured within any DCO (see discussion at paragraph 25.4.53 of this report).
- 25.4.96. In light of the differences between the parties, we are of the view that ensuring sufficient compensation would be available should be approved by the SoS rather than any third party.
- 25.4.97. In its draft PPs, in relation to the definition of 'additional costs' the applicant is seeking for it to pre-approve the use of vessel or alternative arrangements (see sub-paragraph (b)). In our view this is not necessary and would fetter the operation, maintenance or decommissioning of the existing facilities. There is no need for it, since any additional costs occasioned to either Spirit or Harbour can only be 'reasonably and properly incurred', and subject to 'reasonable endeavours to minimise or mitigate such costs' and would be subject to arbitration.
- 25.4.98. The two definitions of 'consequential loss' are different, relating to whether they include operational and maintenance costs. Following our re-drafting they should be the same, and we have utilised those set out in part 3.
- 25.4.99. Where compensation is payable, we have amended the drafting of the two parts so that they the same, particularly as regards the dispute regime. We consider that a 28 day period in which to commence the dispute is reasonable.

Temporary infrastructure

- 25.4.100. Spirit has requested on its sole discretion to prevent temporary infrastructure within the buffers, even when requested by a statutory consultee. We consider this would not be reasonable. For example, buoys located on the surface would have no effect on helicopter operations, but a jack-up vessel

may. Refusing a request for the former would not be reasonable, but the latter may well be. Allowing temporary infrastructure, particularly when requested by a statutory consultee, should therefore be permitted in principle.

- 25.4.101. Spirit also wishes to prevent any vessel or surface infrastructure in transit or attributable to the undertaker from being within 1nm of any of the helidecks or 500m of any of the legacy wells for safety reasons. We consider this would be unreasonable. Other than the prevention of access within statutory safety zones, all vessels have the right of innocent passage. We have seen nothing that should affect this position.

General comments on drafting

- 25.4.102. For the reasons set out in section 24.2 we consider that there are no 'owners' of rights in this area, all are licensees.
- 25.4.103. In looking at the applicant's drafting, there are several duplications. For example, in paragraph 1 of part 2, there is the phrase "*which at the date stated in article 1 (citation and commencement of the Order is Harbour Energy*" which is repeated in the definition of "*licensee*" in paragraph 2, and there is no need to define "*authorised development*" as this is set out in article 2.
- 25.4.104. There are a few inconsistencies between the various drafted PPs provided, for example, the Central Processing Complex is named "CPC" in the applicant's and Spirit's PP, but "CPP1" in Harbour's PP. These have been rationalised, and included in article 2 (definitions) as they are proposed to be used in our newly inserted article 19.
- 25.4.105. Although the applicant [REP6-008] and Harbour [REP5a-079] have provided versions of a protective provisions plan, we do not consider this to be necessary. The drafting is clear as to the assets defined and the areas affected, and consequently we consider that references to the plan can be deleted.
- 25.4.106. Our revised PPs, as set out in Appendix C have not been shared with the relevant parties, and the SoS may wish to consider doing so. However, our view is that this is not necessary, as the main provisions were canvassed by the parties during the examination. The SoS should note that due our proposal to add article 19 (funding), the definitions of 'Calder Field', 'Calder Field Facilities' and 'CPC' have been moved from the individual parts to article 2 (interpretation) and therefore do not appear in the PPs.

Part 2 — to be renamed "For the protection of the licensee and duty holder of the Calder Field"

- 25.4.107. The main changes from the applicant's proposed PP are:
- to change the beneficiary to both the duty holder and licensee of the Calder Field

- to change the 'consequential loss' definition, so that it is the same as in part 3, based on any loss of production as defined
- to change the end date of the aviation interim buffer zone to the later of 1 January 2029 or six months after the undertaker gives notice of intention to commence if later
- to change the aviation enduring buffer zone to 1.9nm
- removal of the compensation limit
- to have a 1.5nm marine buffer zone

Part 3—to be renamed “For the protection of the licensee of licences P.251, P1183 and P.153”

25.4.108. The main changes from the applicant's proposed PP are:

- to change the beneficiary to the licensee of the relevant licences
- to change the end date of the aviation interim buffer zone to the later of 1 January 2029 or six months after the undertaker gives notice of intention to commence if later
- to change the aviation enduring buffer zone to 1.9nm
- removal of the compensation limit
- measurements have been taken from the closest relevant point, for most purposes this is the 'nearest extremity edge of the CPP1 or DP-1 platform'
- to have a 1.5nm marine buffer zone

Part 4 – Stena Line Limited

25.4.109. Although the SoCG between Stena Line Limited and the applicant is unsigned, we understand that the PPs are agreed between the parties and have no reason to amend them.

Schedule 6 – Deemed Marine Licence under the 2009 Act

Part 2 – Conditions

General comments

25.4.110. There was discussion throughout the examination as to the wording of the conditions. As with requirements under schedule 2 we will only report where matters were particularly contentious, or disputes remain.

25.4.111. However, we do comment on the time for approval of matters by the MMO under the conditions. For some matters this is six months and for others four months. In our ExQ2 (ExQ2DCO4 [\[PD-015\]](#)) we suggested that a 56 day time period in line with the period for approvals for requirements under schedule 2 should be sufficient.

25.4.112. There was considerable push back from both the MMO and NE. The MMO [\[REP5-075\]](#) stated:

“The MMO does and has rejected documents and requested updates from the Applicant's at the post consent stage both pre and post consultation. However, even if new documents are submitted this

would still require consultation. The MMO also makes a decision on documents with both Applicant and consultees comments. It is not a continuous loop of consultation but notes that some of the matters are very complex and technical and the marine environment is ever changing.

“... the MMO does not consider a 56 day determination period for all consents within the DML appropriate due to the process that is undertaken to reach discharge post consent documents. This is also less than the original 4 months the Applicant has proposed.

“A 56 day determination period may result in delays to works commencing due to issues that arise through the discharge process including consultation.

“The MMO strongly considers that it is inappropriate to put timeframes on complex technical decisions. The time it takes the MMO to make such determinations depends on the quality of the application made, the complexity of the issues, and the amount of consultation the MMO is required to undertake with other organisations to seek resolutions.

“The MMO’s position remains that it is inappropriate to apply a strict timeframe to the approvals the MMO is required to give under the conditions of the DML given this would create disparity between licences issued under the DCO process and those issued directly by the MMO, as marine licences issued by the MMO are not subject to set determination periods.”

25.4.113. NE indicated [[REP5-081](#)] that, in its view, all matters should be 6 months, with only in exception 4 months. It continued: *“This is now the standard going forwards for OWF dMLs and is to provide adequate opportunity for the resolution of any issues at this stage, which will reduce the likelihood of delays to the Applicants [sic] construction schedule. This will also allow for multiple rounds of consultation should the MMO refuse an initial submission or ask the Applicant for more information before re-consulting NE”.*

25.4.114. We are entirely unconvinced by the arguments made by the MMO and NE. We can see no reason why ‘complex matters’ under a DML need to take any longer for determination than, in our view, similarly complex matters under requirements pursuant to schedule 2. To do otherwise can delay the delivery of nationally important infrastructure. However, as at the end of the examination a mixture of 4 months and 6 months were agreed between the applicant and the MMO and NE, we are not going to recommend a change.

Condition 1 – Design parameters

25.4.115. As with R2 (see paragraph 25.4.63) this condition needs to be amended to prevent the erection of WTGs and OSPs within 7.5km of the original boundary of the Liverpool Bay SPA.

Condition 2 – Maintenance of the authorised project

- 25.4.116. This condition was amended during the examination to include a requirement that an annual and a five-yearly maintenance report must be submitted to the MMO. There were further changes during the examination over when this would commence, in case the proposed development was to be constructed in phases, so that the final version had it from “*first operation*”. We are satisfied with the final version.

Condition 7 – Chemicals, drilling and debris

- 25.4.117. There was discussion over the wording of this condition which went through a number of iterations during the examination. The main concerns related to the sources of materials to be taken offshore, how dropped objects and spills would be dealt with, and reporting. At the end of the examination there was agreement on the wording between the applicant and the MMO and we are content with the wording.

Condition 8 – Force majeure

- 25.4.118. This condition would deal with the situation where, if due to stress of weather or other reason the safety of human life or the vessel is threatened, the master of a vessel may deposit otherwise authorised deposits outside the application site. This is subject to reporting and removal obligations.
- 25.4.119. The MMO objected to this condition [REP5-075] on the basis that it would duplicate but be set at a lower threshold than, s86 of the Marine and Coastal Access Act 2009 and would not meet the five tests for conditions. Its consideration as to these tests was set out in [REP3-085] paragraph 3.2.18 to 3.2.28. The main reasons were that it was considered not to be necessary, as it replicates other powers, and as it relies on a subjective assessment of why it was necessary to deposit the matters meaning it would be neither enforceable nor precise.
- 25.4.120. The applicant noted that a similar condition had been imposed in the Sheringham and Dudgeon Extension DCO, and the MMO did not raise this as an issue in the Rampion 2 examination.
- 25.4.121. In response to this, in our proposed changes to the DCO [PD-019] we recommended the wording be changed from “*due to stress of weather or any other cause*” to “*due to stress of weather or any other unforeseeable cause*” on the basis that this complied with the dictionary definition of ‘force majeure’ and made the condition more precise. This the applicant did at D5a and is included in [REP6-002].
- 25.4.122. We consider that this condition is necessary and, with the amendment we proposed would be sufficiently precise. We are therefore not recommending any change to this condition.

Conditions 9 and 10 – Pre-construction plans and documentation

- 25.4.123. These conditions went through a number of iterations during the examination dealing with various matters. The main changes related to:
- including onshore protected landscape bodies as consultees in relation to the approval of the layout
 - ensuring the principles of the design statement [\[REP5a-007\]](#) were incorporated into the layout
 - agreeing time scales for submissions and approvals
 - ensuring micro-siting would take account of both archaeology and benthic habitat matters
 - ensuring the principle of the outline construction method statement [\[REP6-034\]](#) is incorporated into the final method statement
 - providing that a site specific chemical risk assessment for all materials taken offshore would be agreed with the MMO
- 25.4.124. With the exception of the consultation with onshore protected landscape bodies, which is discussed in chapter 19 of this report and which we recommend is removed, in light of all these agreed changes, we are satisfied with the final drafting of the condition.

Condition 15 – Construction monitoring

- 25.4.125. During the examination, this condition was amended to include, in the event that piling was used in foundations, that should significantly different impacts be identified in monitoring then all piling must cease until an updated marine mammal mitigation protocol and further monitoring is agreed. This is discussed further in chapter 14 of this report and we are content with the final drafting.

Condition 18 – Completion of construction

- 25.4.126. This condition was amended during the examination to provide more precision as to the details that would need to be submitted following completion of the proposed development. We are content with the final drafting.

Condition 19 – Marine Noise Registry

- 25.4.127. This condition was added at the request of the MMO in [\[REP3-085\]](#) to require, in the event that piles were used, details would be provided to the Marine Noise Registry. We are content with the final drafting.

Condition 20 – Underwater sound management strategy

- 25.4.128. This condition was added at the request of the MMO [\[RR-047\]](#) and NE [\[RR-061\]](#) to require the submission of an underwater sound management strategy in accordance with the outline underwater sound management strategy, including the provision of noise reduction measures or noise abatement systems (or both). The final wording was agreed between the parties, and we are content with it.

- 25.4.129. The condition would also prevent piling between 15 February and 31 March (inclusive) in any year to ensure that cod larvae would not be adversely affected (see paragraphs 9.3.28 and 9.3.29 of this report), although alternative arrangements can be put in place if agreed.
- 25.4.130. The applicant was of the view that the wording in the outline underwater sound management strategy [\[REP5a-042\]](#) dealt with this sufficiently and this was unnecessary. However, we consider that in the interests of precision and enforceability this should lie on the face of the DML.

Condition 21 – Deployment of new cable protection and scour protection

- 25.4.131. This condition was added during the examination to align with chapter 5: Project Description of the environmental statement [\[REP1-022\]](#) and in response to NE's Risk and Issues Log – Deadline 1 [\[REP1-098\]](#), point RI_A9] to prevent the installation of new cable protection and scour protection after a period of 10 years of first operation.
- 25.4.132. The final Risk and Issues log [\[REP6-052\]](#) has this as a resolved matter, and we are content with the final drafting.

Compliance with The Infrastructure Planning (Decisions) Regulations 2010

- 25.4.133. Under regulation 3A of The Infrastructure Planning (Decisions) Regulations 2010 where the SoS is considering to grant a DCO which would include a DML the SoS must have regard to:
- the need to protect the environment
 - the need to protect human health
 - the need to prevent interference with legitimate uses of the sea
- 25.4.134. Having considered each of these matters throughout this report, we are satisfied that the DML would include sufficient matters to protect both the environment and human health and would not result in unacceptable interference with legitimate uses of the sea. Consequently, the SoS would be able to grant a DML.

Schedule 8 – Documents to be certified

- 25.4.135. With the exception of whether a Crown Land Plan, see section 24.2 of this report, or a Spirit and Harbour Protective Provisions plan were necessary, see paragraph 25.4.105 of this report, there was no dispute about the plans to be included within Schedule 8.
- 25.4.136. The drafting includes a 'Planning Inspectorate Reference' column which includes the examination library reference. Because such references are provided by the Planning Inspectorate, they were included retrospectively in the next iteration of the dDCO. This means that the documents supplied at D6 and at the end of the examination do not form part of the applicant's drafting.

- 25.4.137. We consider that this is a sensible way of proceeding, but does, of course, require us to recommend a small number of changes to the schedule to bring it up to the end of the examination. These are included in Table 11.

25.5. OTHER CONSENTS AND LICENCES

- 25.5.1. The applicant's 'Other Consents and Licences Required' [\[AS-006\]](#) sets out the other consents and permissions that the applicant considers would be required to allow the Proposed Development to be constructed.

- 25.5.2. These would be:

- Appropriate Assessment under The Habitats Regulations
- Coast Station Radio Licence
- Decommissioning Scheme
- Energy Generation Licence
- European Protected Species licence for piling and unexploded ordnance (UXO) clearance
- F10 – Notification of Construction project under the Construction (Design and Management) Regulations 2015
- Marine Licence for UXO identification
- Marine Licence for UXO clearance
- Safety Zones under Energy Act 2004
- The Crown Estate Beneficial Use Agreement

- 25.5.3. With the exception of the appropriate assessment, which is discussed in chapter 22 of this report, we consider that all of these are necessary, and do not fall outside the 'one-stop shop' approach of the PA2008.

25.6. EXA’S RECOMMENDED CHANGES

25.6.1. Table 11 and Table 12 together set out our recommended changes to the preferred DCO from all the various elements set out above and are included in our recommended DCO set out in Appendix E.

Table 11: DCO Provisions Recommended to be Changed (except for matters relating to Habitats Regulations Assessment)

Provision as cited in preferred DCO	Examination Issue (section in this Report)	Change
Table of contents		Add additional article: “19. Funding” Rename schedule 3, part 2: “For the protection of the licensee and duty holder of the Calder Field” Rename schedule 3, part 3: “For the protection of the licensee of licences P.251, P1183 and P.153”
Article 2(1)	In light of provision of new article (19) relating to funding, definitions apply not only in schedule 3	After the definition of “cable protection” insert: ““Calder Field” means the Calder offshore gas field which underlies United Kingdom Continental Shelf block 110/7a; “Calder Field Facilities” means the facilities and infrastructure pertaining to the Calder Field;” After the definition of “commence” insert: ““CPC” means the hydrocarbon production and processing facilities complex known generally as such or the Central

Provision as cited in preferred DCO	Examination Issue (section in this Report)	Change
		Processing Complex located in the United Kingdom Continental Shelf block 110/2a, 110/3a and 110/8a;”
New article	Funding	Insert new provision as Article 19: “Guarantees in respect of payment of compensation 19.—(1) The undertaker must not commence development unless it has put in place either— (a) a guarantee and the amount of that guarantee approved by the Secretary of State in respect of the liabilities of the undertaker to pay compensation pursuant to the provisions of schedule 3; or (b) an alternative form of security and the amount of that security for that purpose approved by the Secretary of State in respect of the liabilities of the undertaker to pay compensation pursuant to the provisions of schedule 3. (2) A guarantee or alternative form of security given in respect of any liability of the undertaker to pay compensation pursuant to the provisions referred to in paragraph (1) is to be treated as enforceable against the guarantor or person providing the alternative form of security by any person to whom such compensation is payable and must be in such a form as to be capable of enforcement by such a person.

Provision as cited in preferred DCO	Examination Issue (section in this Report)	Change
		(3) Nothing in this article requires a guarantee or alternative form of security to be in place after the Secretary of State has confirmed pursuant to paragraph 6 of part 2 of schedule 3 and paragraph 7 of part 3 of schedule 3 that the Calder Field Facilities and the CPC have been decommissioned. (4) Nothing in this article requires a guarantee or alternative form of security to be put in place by the undertaker where— (a) the undertaker provides the Secretary of State with financial information sufficient to demonstrate that it has appropriate funding in place without a guarantee or alternative form of security to meet any liability to pay compensation under this Order in respect of the exercise of the relevant powers in paragraph (1); and (b) The Secretary of State provides confirmation that no such guarantee is required.”
Schedule 2, Requirement 1(1)	Time limit for commencement	Delete “(1) Subject to sub-paragraph (2),”. Replace the first occurrence of “the” with “The”. Replace “seven years” with “five years”. Delete the whole of (2).

Provision as cited in preferred DCO	Examination Issue (section in this Report)	Change
Schedule 2, Requirement 2	Habitats Regulations Assessment	After paragraph (2) insert: “(3) No part of any wind turbine generator or offshore substation platform to be constructed as part of the authorised project shall be located within 7.5km of a line between 53° 48.8’ N 3°23.8’ W and 53° 52.65’ N 3°23.8’ W.” And renumber paragraphs (3) and (4), as (4) and (5) respectively. <u>Note:</u> In the event the SoS considers that the restriction of WTGs within 7.5km of the original Liverpool Bay SPA boundary is not required for any reason, this provision should not be imposed. Alternatively, should the SoS consider a different distance is appropriate, then this should be amended as such.
Schedule 3, Part 1	Protective Provisions	In the definition of: “Lanis-1 cable” delete “shown dark yellow and annotated as Lanis 1 on the Spirit and Harbour Protective Provisions Plan”; “Hibernia A cable” delete “shown dark yellow and annotated as Hibernia ‘A’ on the Spirit and Harbour Protective Provisions Plan”. Delete the definition of “Spirit and Harbour Protective Provisions Plan”.

Provision as cited in preferred DCO	Examination Issue (section in this Report)	Change
Schedule 3, Parts 2 and 3	Protective Provisions	Due to the extensive number of changes, these are set out in Appendix D to this report.
Schedule 6, Part 1, paragraph 1(4)	Effect on protected landscapes	Delete references to Arnside and Silverdale Landscape Partnership, Forest of Bowland National Landscape Joint Advisory Committee and Lake District National Park Authority, and re-letter as necessary.
Schedule 6, Part 2, condition 1	Habitats Regulations Assessment	Add “(1)” before “The authorised project”, and add new sub-paragraph (2): “(2) No part of any wind turbine generator or offshore substation platform to be constructed as part of the authorised project shall be located within 7.5km of a line between 53° 48.8’ N 3°23.8’ W and 53° 52.65’ N 3°23.8’ W.”
Schedule 6, Part 2, condition 9	Effect on protected landscapes	Replace “Trinity House, the MCA, the Lake District National Park Authority, the Arnside and Silverdale National Landscape Partnership and the Forest of Bowland National Landscape Joint Advisory Committee” with “Trinity House or the MCA”.
Schedule 8	Draft DCO	In Table 6, for the following items replace “[tbc – D6 update]” with:

Provision as cited in preferred DCO	Examination Issue (section in this Report)	Change		
		<u>Document reference number</u>	<u>'New' Planning Inspectorate Reference</u>	<u>Document Name</u>
		5.1.12	REP6-009	Chapter 12 Offshore Ornithology
		5.1.19	REP6-011	Chapter 19 Human Health
		5.1.21	REP6-013	Chapter 21 Climate Change
		5.5	AS-016	Schedule of Mitigation
		9.66	REP6-037	VHF, UHF and DF Technical Safeguarding Assessment
		6.4	REP6-017	In Principle Monitoring Plan
		6.5	REP6-019	Draft Marine Mammal Protocol
		9.49	REP6-034	Outline Construction Method Statement

Provision as cited in preferred DCO	Examination Issue (section in this Report)	Change
Schedule 8	Protective provisions plan	Delete reference to ‘Other Examination Documents’ and ‘Spirit and Harbour Protective Provisions Plan’.

25.6.2. Table 12, Table 13, Table 14 and Table 15 set out the various changes that would need to be made in addition to those shown in Table 11 in the event that the SoS considers compensation is required for the effects on designated sites forming part of the national site network (see paragraphs 25.4.2 and 25.4.3).

25.6.3. This is our positive recommendation and is included within the recommended DCO in Appendix E.

Table 12: DCO provisions recommended to be changed in addition to those in Table 11 in the event that compensatory measures are deemed/ determined necessary in respect of effects on the Morecambe Bay and Duddon Estuary SPA and Ramsar sites and Ribble and Alt Estuaries SPA and Ramsar site only

Provision as cited in preferred DCO	Examination Issue (section in this Report)	Change
Table of contents	Habitats Regulations Assessment	Delete title “Part 1” and title and text of Part 2
Schedule 7	Habitats Regulations Assessment	Delete title “Part 1” and title and text of Part 2
Schedule 7, (Part 1)	Habitats Regulations Assessment	Replace paragraph 2 with: 2.— (1) No later than six months prior to the commencement of the authorised development, the undertaker must submit to the Secretary of State for approval a scheme demonstrating either:

Provision as cited in preferred DCO	Examination Issue (section in this Report)	Change
		(a) its ability to provide project-alone lesser black-backed gull compensation in line with paragraph 4, 5 and 6 of this Schedule; or (b) it is unable to provide project-alone lesser black-backed gull compensation in line with paragraph 4, 5 and 6 of this Schedule, giving reasons for this. (2) If the Secretary of State is content that the undertaker is unable to provide project-alone lesser black-backed gull compensation in line with paragraph 4, 5 and 6 of this Schedule, then the applicant must provide compensation through a contribution to the strategic compensation fund. (3) Paragraphs 4, 5 and 6 of this Schedule shall not apply in the event that a project-alone lesser black-backed gull compensation measure is to be delivered. (4) Paragraphs 7 to 13 of this Schedule shall not apply in the event that compensation is being provided through a contribution to the strategic compensation fund. And renumber paragraphs thereafter.
Schedule 8	Habitats Regulations Assessment	Delete reference to: ‘Habitats Regulations Assessment Without Prejudice Derogation Case (RTD)’

Provision as cited in preferred DCO	Examination Issue (section in this Report)	Change
		‘Outline Compensation Implementation and Monitoring Plan – Red-throated diver’

Table 13: DCO provisions recommended to be changed from [\[REP6-002\]](#) in addition to those in Table 11 in the event that compensatory measures are deemed/ determined necessary in respect of effects on both the Morecambe Bay and Duddon Estuary SPA and Ramsar site and Ribble and Alt Estuaries SPA and Ramsar site and the Liverpool Bay / Bae Lerpwl SPA

Provision as cited in preferred DCO	Examination Issue (section in this Report)	Change
Table of contents	Habitats Regulations Assessment	No changes to [REP6-002]
Article 18	Habitats Regulations Assessment	No changes to [REP6-002]
Schedule 7, part 1, paragraph 2	Habitats Regulations Assessment	Replace paragraph 2 with: 2.— (1) No later than six months prior to the commencement of the authorised development, the undertaker must submit to the Secretary of State for approval a scheme demonstrating either: (a) its ability to provide project-alone lesser black-backed gull compensation in line with paragraph 4, 5 and 6 of this Schedule; or

Provision as cited in preferred DCO	Examination Issue (section in this Report)	Change
		(b) it is unable to provide project-alone lesser black-backed gull compensation in line with paragraph 4, 5 and 6 of this Schedule, giving reasons for this. (2) If the Secretary of State is content that the undertaker is unable to provide project-alone lesser black-backed gull compensation in line with paragraph 4, 5 and 6 of this Schedule, then the applicant must provide compensation through a contribution to the strategic compensation fund. (3) Paragraphs 4, 5 and 6 of this Schedule shall not apply in the event that a project-alone lesser black-backed gull compensation measure is to be delivered. (4) Paragraphs 7 to 13 of this Schedule shall not apply in the event that compensation is being provided through a contribution to the strategic compensation fund. And renumber paragraphs thereafter
Schedule 7, part 2 title	Typographic error	Replace “Bar Lerpwl” with “Bae Lerpwl”
Schedule 7, part 2, paragraph 2	Habitats Regulations Assessment	2.— (1) No later than six months prior to the commencement of the authorised development, the undertaker must submit to the Secretary of State for approval a scheme demonstrating either:

Provision as cited in preferred DCO	Examination Issue (section in this Report)	Change
		(a) its ability to provide project-alone red-throated diver habitat management measure in line with paragraph 4, 5 and 6 of this Schedule; or (b) it is unable to provide project-alone red-throated diver habitat management measure compensation in line with paragraph 4, 5 and 6 of this Schedule, giving reasons for this. (2) If the Secretary of State is content that the undertaker is unable to provide project-alone red-throated diver habitat management measure in line with paragraph 4, 5 and 6 of this Schedule, then the applicant must provide compensation through a contribution to the strategic compensation fund. (3) Paragraphs 4, 5 and 6 of this Schedule shall not apply in the event that a project-alone red-throated diver habitat management measure is to be delivered. (4) Paragraphs 7 to 13 of this Schedule shall not apply in the event that compensation is being provided through a contribution to the strategic compensation fund. And renumber paragraphs thereafter
Schedule 8	Habitats Regulations Assessment	No changes to [REP6-002]

Table 14: DCO provisions recommended to be changed from [REP6-002] in addition to those in Table 11 in the event no compensatory measures in respect of designated sites forming part of the national site network are deemed/ determined necessary

Provision as cited in preferred DCO	Examination Issue (section in this Report)	Change
Table of contents	Habitats Regulations Assessment	Delete schedule 7, and renumber schedule 8 as schedule 7
Article 18	Habitats Regulations Assessment	Delete article (and then renumber proposed new article 19 as article 18)
Schedule 7	Habitats Regulations Assessment	Delete schedule
Schedule 8	Habitats Regulations Assessment	Retitle as “Schedule 7”. Delete reference to: ‘Habitats Regulations Assessment Without Prejudice Derogation Case’ ‘Outline Compensation Implementation and Monitoring Plan’ ‘ ‘Habitats Regulations Assessment Without Prejudice Derogation Case (RTD)’ Outline Compensation Implementation and Monitoring Plan – Red-throated diver’

Table 15: DCO provisions recommended to be changed from [REP6-002] in addition to those in Table 11 in the event that compensatory measures are deemed/ determined necessary in respect of effects on Liverpool Bay / Bae Lerpwl SPA only

Provision as cited in preferred DCO	Examination Issue (section in this Report)	Change
Table of contents	Habitats Regulations Assessment	Delete “Part 1” and title “Part 2”
Schedule 7	Habitats Regulations Assessment	Delete Part 1 in its entirety and delete title “Part 2” and replace “Bar Lerpwl” with “Bae Lerpwl”
Schedule 7, paragraph 2	Habitats Regulations Assessment	2.—(1) No later than six months prior to the commencement of the authorised development, the undertaker must submit to the Secretary of State for approval a scheme demonstrating either: (a) its ability to provide project-alone red-throated diver habitat management measure in line with paragraph 4, 5 and 6 of this Schedule; or (b) it is unable to provide project-alone red-throated diver habitat management measure compensation in line with paragraph 4, 5 and 6 of this Schedule, giving reasons for this. (2) If the Secretary of State is content that the undertaker is unable to provide project-alone red-throated diver habitat management measure in line with paragraph 4, 5 and 6 of this Schedule, then the applicant must provide compensation through a contribution to the strategic compensation fund.

Provision as cited in preferred DCO	Examination Issue (section in this Report)	Change
		(3) Paragraphs 4, 5 and 6 of this Schedule shall not apply in the event that a project-alone red-throated diver habitat management measure is to be delivered. (4) Paragraphs 7 to 13 of this Schedule shall not apply in the event that compensation is being provided through a contribution to the strategic compensation fund. And renumber thereafter.
Schedule 8	Habitats Regulations Assessment	Delete reference to: ‘Habitats Regulations Assessment Without Prejudice Derogation Case’ ‘Outline Compensation Implementation and Monitoring Plan’

25.7. ExA's CONCLUSIONS

- 25.7.1. We have considered all the iterations of the dDCO submitted by the applicant set out in Table 11 and Table 12, and have noted the changes made during the examination in response to representations and as set out in our Proposed Changes [[PD-019](#)].
- 25.7.2. We are satisfied that the rdDCO (Appendix E) would adequately define the scope of any consent being granted and that it would secure the necessary controls and mitigation measures that are consistent with the assessments provided in the ES.
- 25.7.3. We consider that the rdDCO (Appendix E) only includes requirements that are necessary, relevant to planning, relevant to the development to be consented, enforceable, precise, and reasonable in all other respects. On that basis we are of the view that paragraph 4.1.16 of NPS EN-1 would be satisfied.
- 25.7.4. In the event that the SoS comes to a different conclusion to us on HRA matters, alternative draftings are given in Table 13, Table 14 and Table 15 with guidance on use in paragraphs 25.4.2 and 25.4.3.

26. SUMMARY OF FINDINGS AND CONCLUSIONS

26.1. INTRODUCTION

- 26.1.1. This chapter summarizes our conclusions arising from the Report as a whole and sets out our recommendation to the Secretary of State (SoS).

26.2. CONSIDERATION OF FINDINGS AND CONCLUSIONS

- 26.2.1. We have considered whether the determination of this application is in accordance with the relevant National Policy Statements (NPS), the 2024 Overarching National Policy Statement for Energy (NPS EN-1), the National Policy Statement for Renewable Energy Infrastructure (NPS EN-3] and the National Policy Statement for Electricity Networks Infrastructure (NPS EN-5]. We conclude that the proposed development would be in accordance with them taking each as a whole.
- 26.2.2. We do not believe that permitting the proposed development would lead the UK to be in breach of any of its international obligations where relevant. We are satisfied this would not be the case, nor would it lead to the SoS being in breach of any duty imposed on the SoS by or under any enactment or be otherwise unlawful by virtue of any enactment.
- 26.2.3. We have also taken into account the relevant marine plan, the North West Inshore and North West Offshore Marine Plan, the National Planning Policy Framework and the Planning Practice Guidance and all other important and relevant matters referred to in this report.
- 26.2.4. Whilst the SoS is the competent authority The Conservation of Offshore Marine Habitats and Species Regulations 2017, and will make the definitive assessment under those regulations, we are satisfied that, while the proposed development would have an adverse effect on the Morecambe Bay and Duddon Estuary Special Protection Area (SPA) and Ramsar and Ribble and Alt Estuaries SPA and Ramsar, with particular reference to lesser black backed gull, there are compelling reasons to grant consent leading to overriding reasons of public interest, and that appropriate compensation could be secured to ensure that there would not be an adverse effect on the integrity of the sites.
- 26.2.5. In relation to the Liverpool Bay/ Bae Lerpwl SPA we are satisfied that, subject to the mitigations we are recommending which would be secured by amendments to the draft development consent order, the proposed development would not be likely to have any significant effects on that site. These findings have been taken into account in reaching our recommendation.
- 26.2.6. In reaching our recommendation we have considered whether the proposed development would be in accordance with the relevant NPSs and matters prescribed in relation to the development and other matters that are both important and relevant to the decision, as required by s104(2) of PA2008.

- 26.2.7. The proposed development would deliver very great benefits from the production of low carbon electricity as part of the government's policies towards both Net Zero in 2050 and Clean Power Action Plan 2030. These benefits would be slightly reduced by the wake effect that the proposed development would have on existing offshore wind farms in the vicinity and from additional emissions resulting from diverted vessel journeys around the application site. However, comparing the amount of production lost against the overall benefit would not, in our view, reduce the overall weight that should be given to this benefit of the proposed development. The proposed development would also have a little benefit on human health.
- 26.2.8. Set against these benefits, the proposed development would have an adverse effect on the setting of various land based heritage assets. Even giving great weight to the conservation of these assets, this would, in our view, only carry a little weight against the proposed development in the planning balance, and in any event would be outweighed by the benefit of the proposed development. There would also be harm with moderate weight through the effect on marine mammals, seascape and visual receptors, particularly between Fleetwood and Lytham St Anne's, and offshore ornithology and bats (excluding Habitats Regulations matters).
- 26.2.9. Further, the proposed development would result in harm to other infrastructure, particularly to the oil and gas installations and other windfarms close to the application site, but we give this a little weight. There would also be little weight to be given against the proposed development in respect of benthic ecology, civil and military aviation and radar, commercial fisheries, fish and shellfish ecology, and shipping and navigation.
- 26.2.10. We consider that the proposed development would be of neutral weight in respect of its effects in relation to climate change (to avoid double counting of weight with 'need'), landscape receptors (including protected landscapes), marine archaeology, marine geology, oceanography and processes, marine sediment, socio-economics, tourism and recreation and traffic and transport.
- 26.2.11. Taking all the above matters together we are satisfied that the proposed development would be in accordance with each of the relevant NPSs taken each as a whole, and that the benefits would outweigh the harms. In our view, the case for the making the development consent order has been made out.
- 26.2.12. We have had regard to the Human Rights Act 1998 and consider that there has been the opportunity for objectors to make their cases through both the written processes and the hearings fully, fairly and in public. This has ensured compliance with Article 6. There would be no interference with land rights, and while there would be interference with the enjoyment of possessions by third parties, we consider that such interference would be justified in the public interest.
- 26.2.13. We have had regard to the Public Sector Equality Duty. While the final consideration of this is for the SoS, we conclude that due to the nature of the

project there would be no positive or negative effects for those with any protected characteristics when compared with any other group.

- 26.2.14. Our recommendation takes into account Regulations 3, 3A and 7 of The Infrastructure Planning (Decisions) Regulations 2010 in respect of the effect on listed buildings, conservation areas and scheduled monuments, and biological diversity as set out in the report, and in relation to the decision as to whether to grant a deemed marine licence as part of the proposal.

26.3. RECOMMENDATION

- 26.3.1. For all the above reasons and in the light of our findings and conclusions on important and relevant matters set out in this Report subject to our comment in paragraph 25.3.3, we, as Examining Authority under the PA2008, recommend that the Secretary of State for Energy Security and Net Zero should make an Order granting development consent for the proposed development as applied for subject to the amendments to the applicant's preferred development consent order and as set out in Appendix E of this report.

The Planning Act 2008

MORECAMBE OFFSHORE WINDFARM GENERATION ASSETS

Examining Authority's Report
of Findings and Conclusions
and

Recommendation to the Secretary of State for
Energy Security and Net Zero

Examining Authority

Robert Jackson BA MPhil DMS MRTPI MCIM (Lead Member of the Panel)

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23 July 2025

APPENDICES

APPENDICES

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APPENDIX A: LIST OF ABBREVIATIONS

Abbreviation	Full Reference
°	degree
AA	Appropriate Assessment
AC	Alternating Current
ADD	Acoustic Deterrent Devices
ADR	Air Defence Radar
AEoI	Adverse Effect on Integrity
AEP	Annual Energy Production
AEZ	Archaeological Exclusion Zone(s)
AfL	Agreement for Lease
AIS	Automatic Identification System
AInS	Air Insulated Switchgear
AltMoC	Alternative Means of Compliance
AL	Cefas Action Level
ALARP	As Low As Reasonably Practicable
AMSL	Above Mean Sea Level
ANCB	Appropriate Nature Conservation Body
ANS	Artificial Nest Structure
AP-1	Accommodation Platform (part of the CPC)
ARMS	Approved Radar Mitigation Scheme
ASI	Accompanied Site Inspection
ASSI	Area of Special Scientific Interest
ATS	Air Traffic Service
AyM	Awel y Môr (Offshore Wind Farm)
BAC	Background Assessment Concentrations
BAE	BAE Marine Systems Limited
BAE Ops	BAE Systems (Operations) Limited
BAP	Biodiversity Action Plan
BDMPS	Biologically defined minimum population scale
BEIS	Department for Business, Energy & Industrial Strategy
BML	Bodorgan Marine Limited
BLK	Blackpool Airport
C	Condition

Abbreviation	Full Reference
CAA	Civil Aviation Authority
CAH	Compulsory Acquisition Hearing
CAT	Commercial Air Transport
CCC	Climate Change Committee
CCRA	Climate Change Resilience Assessment
CCS	Carbon Capture and Storage
CCUS	Carbon Capture Utilisation and Storage
CEA	Cumulative Effects Assessment
Cefas	Centre for Environment, Fisheries and Agriculture Sciences
CfD	Contracts for Difference
CIMP	Compensation, Implementation and Monitoring Plan
CIV	Central Impact Value
CIS	Celtic and Irish Sea
CM	Compensatory Measures
CMS	Construction Method Statement
CNP	Critical National Priority
CNS	Communications, navigation and surveillance
CO₂	Carbon Dioxide
CO₂e	Carbon Dioxide Equivalent
COP	Cessation of Production
CPC or CPP1	Central Processing Complex
CPP-1	Central Production Platform (part of the CPC)
CRM/ sCRM	Collision Risk Modelling/Stochastic Collision Risk Modelling
CRNRA	Cumulative Regional Navigation Risk Assessment
CRoW Act	Countryside and Rights of Way Act 2000
CSG	Compensation Steering Group
CTA	Control Area
CTV	Crew Transfer Vessel
D	Deadline
DAERA	Department for Agriculture, Environment and Rural Affairs
DCO	Development Consent Order
dDCO	Draft Development Consent Order
DEFRA	Department for Environment, Food and Rural Affairs
DESNZ	Department for Energy Security and Net Zero

Abbreviation	Full Reference
DF	Direct Frequency
DML	Deemed Marine Licence
dDML	Draft Deemed Marine Licence
dMMMP	Draft Marine Mammal Mitigation Protocol
DIO	Defence Infrastructure Organisation
DP-1	Drilling Platform (part of the CPC)
DRC	Dose Response Curve
EA	Environment Agency
EDR	Effective Deterrence Range
EEA	European Economic Area
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EIA Regulations	Infrastructure Planning (Environmental Impact Assessment) Regulations 2017
EISTP	East Irish Sea Transmission Project
EL	Examination Library
EM	Explanatory Memorandum
EMF	Electromagnetic Field
ERCoP	Emergency Response Cooperation Plan
ERL	Effects Range Low
ERRV	Emergency Rescue and Recovery Vessel
ES	Environmental Statement
ETG	Expert Topic Group
ExA	Examining Authority
ExQ1	ExQ1 First Written Questions
ExQ2	ExQ2 Further Written Questions
ExQ3	ExQ3 Further Written Questions
FID	Flight Information Display
FLCP	Fisheries Liaison and Co-Existence Plan
FLO	Fisheries Liaison Officer
FOCI	Feature of Conservation Interest
ft	Feet
g	gram
GBBG	Great Black-backed Gull
GBS	Gravity Base Structure

Abbreviation	Full Reference
GHG	Greenhouse Gas
GLVIA3	Guidelines for Landscape and Visual Impact Assessment, 3rd Edition
GInS	Gas Insulated Switchgear
GVA	Gross Value Added
GW	Gigawatt
GWh	Gigawatt hour
Harbour	Chrysaor Resources (Irish Sea) Limited
ha	Hectare
HAT	Highest Astronomical Tide
HE	Historic England (Historic Buildings and Monuments Commission for England)
HPAI	Highly Pathogenic Avian Influenza
HRA	Habitats Regulations Assessment
IAMMWG	Inter-Agency Marine Mammal Working Group
IAP	Initial Assessment of Principal Issues
IBTS	International Bottom Trawl Survey
ICAO	International Civil Aviation Organisation
ICES	International Council for the Exploration of the Sea
IEMA	Institute of Environmental Management and Assessment
IFP	Instrument Flight Procedures
IFR	Instrument Flight Rules
IGOMO	International Guidance for Offshore Marine Operations
IMC	Instrument Meteorological Conditions
IMO	International Maritime Organisation
INNS	Invasive Non Native Species
IoMSPC	Isle of Man Steam Packet Company
IoMTSC	Isle of Man Government (Territorial Sea Committee)
IP or IPs	Interested Party or Interested Parties
IPMP	In Principle Monitoring Plan
IROPI or IRoPI	Imperative Reasons of Overriding Public Interest
IRPA	Individual Risk Per Annum
ISH(s)	Issue Specific Hearing(s)
JNCC	Joint Nature Conservation Committee
KAMT	Kenneth Allsop Memorial Trust

Abbreviation	Full Reference
kg	kilogram
km(s)	Kilometre(s)
km²	Square kilometre(s)
kWh	Kilowatt hour
LAT	Lowest Astronomical Tide
LB	Listed Building
LBBG	Lesser Black-backed Gull
LBTSS	Liverpool Bay Traffic Separation Scheme
LCC	Lancashire County Council
LCI	Lower Confidence Intervals
LDNP	Lake District National Park
LEA	Local Economic Area
LFA	Low Flying Area
LIR	Local Impact Report
LSE	Likely Significant Effects
LURA	Levelling up and Regeneration Act 2023
m	Metre(s)
m²	Square Metres
M&MTA	Morgan and Morecambe Offshore Wind Farms Transmission Assets
MBDE	Morecambe Bay and Duddon Estuary
MCA	Maritime and Coastguard Agency
MChA	Marine Character Areas
MCZ	Marine Conservation Zone
MGN	Marine Guidance Note
mg/kg	milligrams per kilogramme
MLWS	Mean Low Water Springs
M&MTA	Morgan and Morecambe Offshore Wind Farms Transmission Assets
MMMP	Marine Mammal Management Plan
MMO	Marine Management Organisation
MNEF	Marine Navigation Engagement Forum
MNR	Marine Nature Reserve
MNZ	Morecambe Net Zero
MoD	Ministry of Defence

Abbreviation	Full Reference
MonOWP	Mona Offshore Wind Project
MOWP	Morgan Offshore Wind Project: Generation Assets
MPA	Marine Protected Area(s)
MPS	Marine Policy Statement
MRF	Marine Recovery Fund
MSA	Minimum Sector Altitudes
MU	Management Unit
MVOWF	Moor Vannin Offshore Wind Farm
MW	Megawatt
MWh	Megawatt hour
NAS	Noise Abatement Systems
National Parks Act	National Parks and Access to the Countryside Act 1949
NATS	NATS (En Route) Plc
NE	Natural England
NFFO	National Federation of Fishermen's Organisations
NFNPA decision	<i>New Forest National Park Authority v Secretary of State for Housing, Communities and Local Government and another</i> [2025] EWHC 726 (Admin)
NM or nm or nmi	Nautical Mile(s)
NPPF	The National Planning Policy Framework
NPS	National Policy Statement
NPS EN-1	Overarching National Policy Statement for energy
NPS EN-3	NPS for Renewable Energy Infrastructure
NPS EN-5	NPA for Electricity Networks Infrastructure
NRA	Navigational Risk Assessment
NRHE	National Record of Historic Environment
NRW(A)	Natural Resources Wales (Advisory)
NSIP(s)	Nationally Significant Infrastructure Project(s)
NSN	National Site Network
NUI	Normally Unmanned Installation
NWMP	North West Inshore and North West Offshore Marine Plan
NWWT	North West Wildlife Trusts
oCIMP	Outline Compensation, Implementation and Monitoring Plan
oCMS	Outline Construction Method Statement
oCSIP	Outline Cable Specification and Installation Plan

Abbreviation	Full Reference
OCNS	Offshore Chemical Notification Scheme
OFH	Open Floor Hearing
oFLCP	Outline Fisheries Liaison and Co-existence Plan
OGA	Oil and Gas Authority
oOWSI	Outline Offshore Written Scheme of Investigation
OP	Other Person
oPATP	Outline Port Access and Transport Plan
oPEMP	Outline Project Environmental Management Plan
OREI	Offshore Renewable Energy Installation(s)
ORJIP	Offshore Renewables Joint Industry Programme
oSEP	Outline Skills and Employment Plan
OSP	Offshore Substation Platform
OSPAR	Oslo and Paris Conventions / Convention for the Protection of the Marine Environment of the North-East Atlantic
oUWSMS	Outline Underwater Sound Management Strategy
oVTMP	Outline Vessel Traffic Management Plan
OWIC	Offshore Wind Industry Council
OWF	Offshore Wind Farm
PA2008	The Planning Act 2008
PAD	Protocol for Archaeological Discovery
PAH	Polycyclic Aromatic Hydrocarbon
PATP	Port Access and Transport Plan
PCB	Polychlorinated Biphenyls
PD(s)	Procedural Decision(s)
PDE	Project Design Envelope
PEIR	Preliminary Environmental Information Report
PEMP	Project Environmental Management Plan
PEXA	Practice and Exercise Areas
PINS	Planning Inspectorate
PLONOR	Pose Little or No Risk
PM	Preliminary Meeting
PP	Protective Provision(s)
PPG	Planning Practice Guidance
pRamsar	Potential Ramsar site
PRS	Primary Surveillance Radar

Abbreviation	Full Reference
PSED	Public Sector Equality Duty
PTS	Permanent Threshold Shift
PVA	Population Viability Analysis
QSR	Quality Status Reports
R	Requirement
RaDIN	Range Dependent Nature of Impulsive Noise
RAE	Ribble and Alt Estuary
RAF	Royal Air Force
RAG	Red, Amber, Green
RCP	Representative Concentration Pathways
rDCO	Recommended Development Consent Order
REWS	Radar Early Warning System
RIAA	Report to Inform Appropriate Assessment
RIES	Report on the Implications for European Sites
RLoS	Radar Line of Sight
RR	Relevant Representation
RSPB	The Royal Society for the Protection of Birds
RTD	Red-throated Diver
S or s	Section eg s106
SAC	Special Area of Conservation
SATCO	Senior Air Traffic Control Officer
SAR	Search and Rescue
SEL_{cum}	Sound Exposure Level (cumulative)
SEP	Skills and Employment Plan
SF6	Sulphur Hexafluoride
SLVIA	Seascape, Landscape and Visual Impact Assessment
SNCB	Statutory Nature Conservation Body
SoC	Schedule of Changes
SoCG	Statement of Common Ground
SoS	Secretary of State
SoSDESNZ	Secretary of State for the Department for Energy Security and Net Zero
SoSLUHC	Secretary of State for Levelling Up, Housing and Communities
SOSSMAT	Strategic Ornithological Support Services Migrant Assessment Tool

Abbreviation	Full Reference
SPA	Special Protection Area
Spirit	Spirit Energy Production UK Limited
SPL	Sound Pressure Level
SSC	Suspended Sediment Concentration
SSR	Secondary Surveillance Radar
SSSI	Site of Special Scientific Interest
SSSP	Skomer, Skokholm and Seas off Pembrokeshire
TCE	The Crown Estate
TEZ	Temporary Exclusion Zone(s)
TH	Trinity House of Deptford Sound
The Flemish Agency	Agentschap Landbouw and Zeevisserij (The Flemish Agency for Agriculture and Fisheries)
TMZ	Transponder Mandatory Zone
TSCFA	Traditional and Sustainable Commercial Fishing Association
TTS	Temporary Threshold Shift
UHF	Ultra High Frequency
UCI	Upper Confidence Intervals
UCL	Upper Confidence Level
UK	United Kingdom
UKCoS	UK Chamber of Shipping
UKHSA	UK Health Security Agency
UKHO	United Kingdom Hydrographic Office
UNCLOS	United Nations Convention on the Law of the Sea
USI	Unaccompanied Site Inspection
UWSMS	Underwater Sound Management Strategy
UXO	Unexploded Ordnance
VCRA	Vessel Collision Risk Assessment
VFR	Visual Flight Rules
VHF	Very High Frequency
VMC	Visual Meteorological Conditions
VTMP	Vessel Traffic Management Plan
WIA	Wake Impact Assessment
WFA	Welsh Fisherman's' Association
WFC	Westmorland and Furness Council
WMS	Written Ministerial Statement

Abbreviation	Full Reference
WoDS	West of Duddon Sands
WR	Written Representation
WTG(s)	Wind Turbine Generator(s)
ZoI	Zone of Influence
ZTV	Zone of Theoretical Visibility

APPENDIX B: KEY LEGISLATION AND POLICY

Key relevant legislation (including any amendments)

- Air Navigation Order 2016
- Birds Directive (2009/147/EC)
- Countryside and Rights of Way Act 2000
- Electricity Act 1989
- Energy Act 2004
- Equality Act 2010
- Habitats Directive (92/43/EEC)
- Human Rights Act 1998
- Levelling up and Regeneration Act 2023
- Marine and Coastal Access Act 2009
- Marine Infrastructure Management Act 2016
- Planning Act 2008
- National Parks and Access to the Countryside Act 1949
- Natural Environment and Rural Communities Act 2006
- Petroleum Act 1998
- The Climate Change Act 2008
- The Climate Change Act 2008 (2050 Target Amendment) Order 2019
- The Conservation of Habitats and Species Regulations 2017
- The Conservation of Offshore Marine Habitats and Species Regulations 2017
- The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009
- The Infrastructure Planning (Decisions) Regulations 2010
- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017
- The Infrastructure Planning (Examination Procedure) Rules 2010
- The Town and Country Planning (Scotland) Act 1972

Key relevant national policy and guidance

Overarching National Policy Statement for Energy (NPS EN-1) (dated November 2023, designated on 17 January 2024)

NPS EN-1 sets out the need for new nationally significant electricity infrastructure and the Critical National Priority for low carbon infrastructure, including offshore wind farms electricity generating stations. It sets out general principles and generic impacts to be considered in considering applications for energy Nationally Significant Infrastructure Projects (NSIPs). All other energy National Policy Statements sit under the policy framework that it provides.

Key relevant national policy and guidance

National Policy Statement for Renewable Energy (NPS EN-3) (dated November 2023, designated on 17 January 2024)

NPS EN-3 details assessment criteria specific to different types of renewable energy infrastructure, including energy from offshore wind farms. It sets out the assessment criteria for offshore wind applications, which include the consideration of biodiversity, ecology and habitats, marine physical and historic environment, commercial fisheries, navigation and shipping, other offshore activities, and seascape and visual effects. Expectations around Habitats Regulations Assessment (HRA), climate change resilience and good design are also articulated.

National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) (dated November 2023, designated on 17 January 2024)

NPS EN-5, amongst other things, provides policy for electricity transmission and distribution systems and applies to other kinds of electricity networks infrastructure including offshore transmission and associated development. In this case the proposed development includes associated development in the form of offshore substations platforms and so this NPS is applicable.

The National Planning Policy Framework (the Framework) and Planning Practice Guidance (PPG) set out the Government's planning policies for England and how these are expected to be applied, for the purposes of making Development Plans and deciding applications for planning permission under the Town and Country Planning Act 1990 (as amended).

Paragraph 5 of the NPPF makes clear that it does not contain specific policies for nationally significant infrastructure projects. These are to be determined in accordance with the decision-making framework in PA2008 and relevant national policy statements for major infrastructure, as well as any other matters that are relevant.

UK Marine Policy Statement 2011

The UK Marine Policy Statement is the overarching framework for marine planning across the UK. It was adopted under Section 44 of the Marine and Coastal Access Act 2009 and sets out how sustainable development should be achieved in the UK marine area.

It guides the preparation of marine plans and informs decisions by public authorities on activities that affect the marine environment. Where no specific marine plan exists, the Marine Policy Statement provides the default policy direction.

North West Inshore and North West Offshore Marine Plan 2021

The North West Inshore and North West Offshore Marine Plan sets out a long-term framework to guide sustainable development, protection, and use of the marine environment in the North West of England. It was adopted in June 2021 and is part of England's complete marine planning framework under the Marine and Coastal Access Act 2009.

Key relevant national policy and guidance

- Assessing Greenhouse Gas Emissions and Evaluating their Significance (2022)
- British Energy Security Strategy (2022)
- Clean Power 2030 Action Plan (2024)
- Convention for the Protection of the Marine Environment of the North East Atlantic (the OSPAR Convention)
- Department for the Environment, Food and Rural Affairs (Defra) 'Guidance for relevant authorities on seeking to further the purposes of Protected Landscapes' (2024)
- Energy White Paper: Powering our Net Zero Future (2020)
- Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (2013)
- Industrial Decarbonisation Strategy (2021)
- Marine Guidance Note 372 (MGN372) (Merchant and Fishing) OREIs: Guidance to Mariners Operating in the Vicinity of UK OREIs
- Marine Guidance Note 654 (MGN654): Safety of Navigation: Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response
- Net Zero Strategy: Build Back Greener (2021)
- Net Zero: The UK's Contribution to Stopping Global Warming Emissions (May 2019)
- Ministerial Written Statement on Marine Environment made on 29 January 2025 (UIN HCWS394)
- Oil and Gas Authority Strategy 2021
- Powering up Britain (2023)
- The Ten Point Plan for a Green Industrial Revolution (2020)
- United Nations Convention on the Law of the Sea (1982)

APPENDIX C: FINDINGS AND CONCLUSIONS IN RELATION TO THE HABITATS REGULATIONS ASSESSMENT

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FINDINGS AND CONCLUSIONS IN RELATION TO THE HABITATS REGULATIONS ASSESSMENT

C.1 INTRODUCTION

C.1.1 This appendix sets out our analysis and conclusions as Examining Authority (ExA) relevant to The Habitats Regulations Assessment (HRA). This will assist the Secretary of State for Energy Security and Net Zero (SoS), as the competent authority, in performing their duties under The Conservation of Habitats and Species Regulations 2017 and The Conservation of Offshore Marine Habitats and Species Regulations 2017 ('The Habitats Regulations').

C.1.2 This appendix is structured as follows:

- section C.2: Findings in relation to Likely Significant Effects on the UK National Site Network and other European sites
- section C.3: Conservation Objectives for sites and features
- section C.4: Findings in relation to Adverse Effects on Integrity
- section C.5: Alternative solutions considered
- section C.6: Imperative Reasons of Overriding Public Interest (IROPI)
- section C.7: Compensatory measures (CM)
- section C.8: HRA conclusions

C.1.3 In accordance with the precautionary principle embedded in The Habitats Regulations, consent for the proposed development may be granted only after having ascertained that it will not adversely affect the integrity of European site(s) and no reasonable scientific doubt remains (CJEU Case C-127/02 *Waddenzee* 7 September 2004).

C.1.4 For the purpose of this report, in line with The Habitats Regulations and relevant Government policy, the term 'European sites' includes Special Areas of Conservation (SAC), candidate SACs, proposed SACs, Special Protection Areas (SPA), potential SPAs, listed and proposed Ramsar sites and sites identified or required as CMs for adverse effects on any of these sites. The 'UK National Site Network' (NSN) refers to the network of European sites within the United Kingdom (UK).

C.1.5 Policy considerations and the legal obligations under The Habitats Regulations are described in chapter 2 of this report.

C.1.6 Marine Conservation Zones (MCZ) are not included in the designations to be considered under The Habitats Regulations. The proposed development is within 50 kilometres (km) of a number of MCZs. The implications of the proposed development for these designations are discussed in chapter 5 of this report.

C.1.7 We have been mindful throughout the examination of the need to ensure that the Secretary of State (SoS) has such information as may reasonably be required to carry out their duties as the competent authority. We have sought evidence from the applicant and the relevant Interested Parties (IPs), including Natural England (NE) as the Appropriate Nature Conservation

Body (ANCB) and Natural Resources Wales Advisory (NRW(A)), as well as NatureScot, Department of Agriculture, Environment and Rural Affairs (DAERA), Isle of Man Government and the Joint Nature Conservation Committee (JNCC) through written questions and issue specific hearings (ISHs).

RIES AND CONSULTATION

- C.1.8 We produced a Report on the Implications for European Sites (RIES) [\[PD-017\]](#) which compiled, documented, and signposted HRA-relevant information provided in the draft Development Consent Order (dDCO) application and examination representations up to Deadline (D) 5 (11 March 2025). The RIES was issued to set out our understanding of HRA-relevant information and the position of the IPs in relation to the effects of the proposed development on European sites at that point in time. Consultation on the RIES took place between 25 March 2025 and 15 April 2025, that is to D6. Comments were received from the applicant [\[REP5a-058\]](#) at D5a (8 April 2025) and the JNCC [\[REP6-044\]](#), NE [\[REP6-051\]](#), NRW (A) [\[REP6-053\]](#), the Royal Society for Protection of Birds (RSPB) [\[REP6-054\]](#) and the Crown Estate (TCE) [\[REP6-068\]](#) at D6 (15 April 2025). These comments have been taken into account in the drafting of this appendix.
- C.1.9 Our recommendation is that the RIES, and consultation on it, may be relied upon as an appropriate body of information to enable the Secretary of State (SoS) to fulfil their duties of consultation under Regulation 63(3) of The Habitats Regulations and Regulation 28(4) of The Offshore Habitats Regulations as the case may be, should the SoS wish to do so.
- C.1.10 It is noted that at the point of issue of the RIES, several HRA matters remained outstanding. Numerous examination submissions at D5a and D6 included HRA relevant information.
- C.1.11 In accordance with the [Planning Inspectorate's Advice on Habitats Regulations Assessment](#), the RIES is not revised following consultation. This Appendix considers all HRA representations made by IPs during the Examination, including those made after consultation on the RIES. Given the HRA information submitted by both the applicant and NE following publication of the RIES, pertaining to potential mitigation of buffers for the RTD feature of the Liverpool Bay/ Bae Lerpwl SPA (Liverpool Bay SPA), the SoS may wish to undertake further consultation to fulfil the duties under Regulation 63(3) of the Habitats Regulations and Regulation 28(4) of the Offshore Habitats Regulations.

PROPOSED DEVELOPMENT DESCRIPTION AND HRA IMPLICATIONS

- C.1.12 The proposed development is described in chapter 1 of this report.
- C.1.13 The spatial relationship between the Order Limits of the proposed development and European sites is shown in Figures 5.1 (benthic ecology), 6.1 (Annex II migratory fish), 7.1 (marine mammals) and 8.1 (seabirds) of the HRA Screening Report [\[APP-028\]](#) updated to [\[REP3-006\]](#).

- C.1.14 The proposed development is not directly connected with, or necessary to, the management of a European site. Therefore, the SoS must make an 'appropriate assessment' (AA) of the implications of the proposed development on potentially affected European sites in light of their Conservation Objectives.
- C.1.15 The applicant submitted a HRA Report ('the HRA Report') with its DCO application, which comprised the following documents:
- Report to Inform Appropriate Assessment (RIAA) [APP-027], updated at D1 [REP1-012], D4 [REP4-009], D5 [REP5-010] and D5a [REP5a-009].
 - HRA Screening Report [APP-028], updated at D3 [REP3-006] to correct typographical errors and ensure alignment between the report and summary tables as requested by us in [PD-011].
 - HRA Without Prejudice Derogation Case [APP-029], updated at D1 [REP1-014], D3 [REP3-008] and D5a [REP5a-011].
 - Outline Compensation Implementation and Monitoring Plan [APP-030], updated at D5a [REP5a-013].
- C.1.16 The RIAA and supporting documents were updated at various deadlines throughout the examination in response to representations and written questions.
- C.1.17 During the examination, the applicant provided the following documents to address comments from us as ExA and IPs:
- HRA Without Prejudice Derogation Case – Red-throated diver at Liverpool Bay SPA/ Bae Lerpwl SPA [REP3-064], updated at D5 [REP5-054] and D5a [REP5a-046]
 - Outline Compensation Implementation and Monitoring Plan – Red-throated diver [REP3-065], updated at D5a [REP5a-048].
- C.1.18 The HRA Report was supported and informed by several technical notes, including:
- Offshore Ornithology Technical Note 2 (HRA) [REP1-081], updated at D3 [REP3-058].
 - Offshore Ornithology Technical Note 3 (red-throated diver at Liverpool Bay SPA Update Assessment) [REP1-082].
 - Marine Mammals Technical Note 2 (HRA) [REP1-084], updated at D3 [REP3-062].
 - Recommendations for the selection of, and boundary options for, an SPA in Liverpool Bay (Webb A., McSorley C.A., Dean B.J. and Reid J.B, 2006) [REP4-053].
 - Additional information to support assessment of red-throated diver feature at Liverpool Bay SPA [REP4-054].
 - Technical Note on the Assessment of Offshore Impacts on Bats over the Irish Sea [REP4-055] [REP5a-050] (described by the applicant as an update to the HRA Screening Report).

APPROPRIATE NATURE CONSERVATION BODIES (ANCBS)

- C.1.19 The proposed development is located in the Irish Sea within UK waters. The HRA Screening Report [[APP-028](#)] updated to [[REP3-006](#)] identified European sites within the UK NSN that are located within England, Wales, Scotland and Northern Ireland for consideration within the assessment.
- C.1.20 NE and NRW(A) registered as IPs and participated in the examination. The JNCC did not register as an IP, with NE's relevant representation (RR) [[RR-061](#)] explaining that NE is authorised to exercise the JNCC's functions as a statutory consultee in respect of applications for offshore renewable energy installations in offshore waters (0-200 nautical miles (nm)) adjacent to England (including for the application for the proposed development). The JNCC participated in the examination from D3 onwards in relation to non-English sites for which it has joint or sole responsibility.
- C.1.21 On 23 September 2024 we wrote to NatureScot and DAERA of Northern Ireland [[PD-009](#)] requesting their participation in the examination. NatureScot [[REP2-039](#)] provided comments on HRA matters however noted that it was unable to participate in the examination further. In our RIES [[PD-017](#)] we requested NatureScot and DAERA to provide clear positions on agreement or otherwise with the applicant's conclusions in relation to AEoI but neither organisation responded by the close of examination on these matters.
- C.1.22 We sought confirmation on the remit of the JNCC [[PD-011](#), ExQ1HRA1] and the JNCC [[REP3-083](#), ExQ1HRA1] confirmed that it would provide comment on Sgomer, Sgogwm a Moroedd Penfro/ Skomer, Skokholm and the Seas off Pembrokeshire (SSSP) SPA, where it holds joint responsibility with NRW(A), and the Irish Sea Front SPA. However, the JNCC deferred to NE for comments on Liverpool Bay SPA.

NON-UK SITES

- C.1.23 The applicant's HRA Screening Report [[APP-028](#)] updated to [[REP3-006](#)] identified the following non-UK European sites for inclusion within the assessment:
- One Republic of Ireland site designated for Annex II marine mammal qualifying features.
 - 22 Republic of Ireland sites designated for offshore ornithological features.
- C.1.24 These are Natura 2000 sites in an European Economic Area (EEA) State.
- C.1.25 Appendices 1 and 2 of the HRA Screening Report identifies the non-UK European sites, qualifying features and potential impacts for which the applicant concluded a likely significant effect (LSE). Their locations relative to the proposed development are depicted on figure 7.1 of [[APP-028](#)] updated to [[REP3-006](#)] (marine mammals) and the Offshore Statutory and Non-statutory Conservation Sites [[AS-003](#)]. The applicant concluded that there would be no AEoI of all non-UK sites [[APP-027](#)] updated to [[REP5a-009](#)] and this was not disputed by any IP during the examination.

- C.1.26 The Isle of Man is not subject to The Habitats Regulations but is part of the Ramsar convention. The HRA Screening Report [\[REP3-006\]](#) identified Ballaugh Curragh Ramsar site for inclusion within the assessment. The RIAA included an assessment of impacts to the hen harrier feature of Ballaugh Curragh Ramsar site from collision risk at section 8.64 and concluded no AEol. This was not disputed by the Isle of Man Government (Territorial Sea Committee) (IoMTSC), the ANCB for Isle of Man [\[RR-031\]](#).
- C.1.27 The RIAA [\[APP-028\]](#), updated to [\[REP5a-009\]](#) table 8.2, summarised pre-application consultation and stated that the IoMTSC identified further potential Ramsar (pRamsar) sites in a report to the Overseas Territories Conservation Forum, but these were not addressed in the RIAA and HRA Screening Report. The IoMTSC [\[RR-031\]](#) did not raise the pRamsar sites in its RR.
- C.1.28 Further to ExQ1 [\[PD-011\]](#), the applicant [\[REP3-068\]](#), ExQ1HRA31] stated that it had discussed the pRamsar sites with the Isle of Man Government and that whilst evidence of the sites' suitability had been collated, no formal submission had been made to the Ramsar Convention Secretariat to enable designation. The applicant stated that until such a submission was made, formal HRA of the pRamsar sites would not be required. The applicant stated that effects on the ornithological features of these sites was assessed in environmental statement (ES) chapter 12 [\[REP1-032\]](#) and that the Isle of Man Government agreed the conclusions, aside from an overarching concern about cumulative effects on great black-backed gull (GBBG) [\[REP1-066\]](#). The IoMTSC [\[REP3-106\]](#) confirmed that the pRamsar sites had not yet been put forward for designation and would first be subject to further assessment.
- C.1.29 Only sites within the UK NSN are addressed further in this appendix.

SUMMARY OF HRA MATTERS CONSIDERED DURING THE EXAMINATION

- C.1.30 The HRA Report assessed potential impacts on European sites with Annex II diadromous fish species, Annex II marine mammals and offshore ornithological qualifying features. The examination addressed matters primarily relating to marine mammals and offshore ornithology.
- C.1.31 In respect of marine mammals, the key issues related to the approach to in-combination assessment and the applicant's proposals for mitigation.
- C.1.32 In respect of offshore ornithology, NE, NRW(A), the JNCC, NatureScot and the RSPB raised concerns with the approaches used by the applicant in various aspects of the assessments, as described in the RIES [\[PD-017\]](#). NE, NRW(A), the JNCC and NatureScot considered that the assessments should be updated in line with their advised approaches. This resulted in a suite of assessment updates being presented by the applicant during the examination. These overarching methodological issues are detailed below.

- C.1.33 In addition to the overarching methodological issues, further matters relating to specific qualifying features and/ or European sites were discussed during the examination and are detailed below.

C.2 FINDINGS IN RELATION TO LIKELY SIGNIFICANT EFFECTS (LSE)

- C.2.1 Under Regulation 63 of The Habitats Regulations and Regulation 28 of The Offshore Habitats Regulations, the competent authority must consider whether a development will have LSE on a European site, either alone or in combination with other plans or projects. The purpose of the LSE test is to identify the need for an AA and the activities, sites or plans and projects to be included for further consideration in the AA.

RELEVANT UK EUROPEAN SITES

- C.2.2 The European sites and qualifying features that were considered in the applicant's assessment of LSE are presented in the HRA Screening Report [\[APP-028\]](#) updated to [\[REP3-006\]](#), with the relevant European sites being detailed in the following:
- table 5.2: Annex I habitats (offshore and coastal) (1 site)
 - table 6.2: Annex II migratory fish species (8 sites)
 - appendix 1: Annex II marine mammals (6 sites)
 - appendix 2: Offshore ornithological features (69 sites)
- C.2.3 Section 5.4 of the RIAA [\[REP5a-009\]](#) stated that whilst 6 sites were screened in for Annex II marine mammals, 2 further sites were included in the assessment of AEoI on a precautionary basis and therefore 8 sites are listed in RIAA paragraphs 84 and 85. The 2 sites included on a precautionary basis were Strangford Lough SAC (harbour seal) and Pembrokeshire Marine SAC (grey seal).
- C.2.4 Section 4.4 of the HRA Screening Report [\[APP-028\]](#) updated to [\[REP3-006\]](#) sets out the process undertaken by the applicant to identify the European sites and features to be included in the screening assessment.
- C.2.5 No European sites designated for terrestrial features were identified for inclusion in the assessment.
- C.2.6 RIAA [\[REP5a-009\]](#) stated that no pathway was established for terrestrial ecology because of the distance of the proposed development from the coast (30km). It stated that no European sites were considered in relation to bats because the species for which sites in the UK are designated are sedentary (remaining in a specific location most of their lives). We [\[PD-011, ExQ1HRA3\]](#) asked NE if it was content with the applicant's approach to screening of terrestrial ecology including bats. NE [\[REP3-092\]](#) identified a potential impact pathway for some migratory bat species and advised the applicant to review available evidence and present findings as to the expected LSE. The applicant prepared a 'Technical Note on the Assessment of Offshore Impacts on Bats over the Irish Sea' [\[REP4-055\]](#) which concluded

the potential for LSE was low and could be excluded from the HRA as none of the migratory species identified are qualifying features of any SAC within the vicinity of the proposed development. NE [\[REP5-080\]](#) remained concerned over the impacts on bats but stated that it was not a HRA matter. Paragraphs 2.1.11 to 2.1.13 of the RIES [\[PD-017\]](#) provide further information on this.

- C.2.7 In response to RIESQ1 [\[PD-017\]](#) NE confirmed that there are no additional European sites or impact pathways that should be screened into the HRA.
- C.2.8 No additional European sites within the UK NSN were identified by IPs for inclusion within the screening assessment.

POTENTIAL IMPACT PATHWAYS

- C.2.9 The HRA Screening Report [\[APP-028\]](#) updated to [\[REP3-006\]](#) detailed the potential impact pathways from the proposed development during construction, operation and maintenance, and decommissioning. The impact pathways from the proposed development alone are summarised in Table HRA 1 below, which also confirms the location of the information in the HRA Screening Report, of the European sites and qualifying features, and the impact pathways which could affect them.

Table HRA 1: Pathways for LSE assessed by the applicant

Receptor groups	LSE pathway
Annex I habitats (tables 5.1 and 5.2 of [REP3-006])	- increased suspended sediment concentration (SSC) and subsequent deposition - re-mobilisation of contaminated sediments - introduction and colonisation of invasive non-native species (INNS) risk of deterioration of water quality due to spillages or leakages
Annex II migratory fish (tables 6.1 and 6.2 of [REP3-006])	- temporary habitat loss or physical disturbance - permanent habitat loss - increased SSC and sediment re-deposition - re-mobilisation of contaminated sediments - underwater noise and vibration - electro-magnetic fields (EMF) - barrier effects - introduction or removal of hard substrate
Annex II marine mammals (table 7.1 and appendix 1 of [REP3-006])	- physical or auditory injury and behavioural effects from underwater noise - barrier effects from underwater noise - vessel interactions (increased risk of collision) - disturbance at seal haul-out sites - changes to water quality - changes to prey availability and any disturbance to foraging at sea

Receptor groups	LSE pathway
Offshore ornithological features (tables 8.1 and 9.1, and appendix 2 of [REP3-006])	▪ disturbance and displacement due to work activity, presence and movement of vessels and plant, and lighting ▪ disturbance, displacement and barrier effects due to presence of wind turbine generators (WTGs) and other infrastructure ▪ collision risk due to presence of WTGs and other infrastructure ▪ indirect effects on habitats and prey species

C.2.10 Table 1 in annex 1 of the RIES [\[PD-017\]](#) detailed the potential impact pathways considered for each European site and qualifying feature.

C.2.11 No additional impact pathways were identified by IPs for inclusion within the assessment.

THE APPLICANT'S ASSESSMENT OF LSE

C.2.12 The applicant's screening conclusions at the point of the DCO application were presented in sections 5 to 9 of the HRA Screening Report [\[REP3-006\]](#).

European sites for which the applicant concluded no LSE on all qualifying features

C.2.13 At the point of application, the applicant concluded that the proposed development would not be likely to give rise to significant effects, either alone or in combination with other projects or plans, on all qualifying features of the European sites detailed in Table HRA 2 below.

Table HRA 2: Sites for which the applicant concluded no LSE on all qualifying features

Receptor group	Site
Annex I habitats	▪ Dee Estuary/Aber Dyfrdwy SAC ▪ Morecambe Bay SAC ▪ Sefton Coast SAC ▪ Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC
Annex II migratory fish	▪ Afon Gwy/ River Wye SAC ▪ Afon Teifi/ River Teifi SAC ▪ Afon Tywi/ River Tywi SAC ▪ Afon Wysg/ River Usk SAC ▪ Bae Caerfyrddin ac Aberoedd/ Camarthen ▪ Bay and Estuaries SAC ▪ Bae Ceredigion/ Cardigan Bay SAC ▪ Môr Hafren/ Severn Estuary SAC ▪ River Bladnoch SAC ▪ Sir Benfro Forol/ Pembrokeshire Marine SAC

Receptor group	Site
Offshore ornithological features	▪ Auskerry SPA ▪ Bae Caerfyrddin/ Camarthen Bay SPA ▪ Belfast Lough Ramsar site ▪ Belfast Lough SPA ▪ Carlingford Lough Ramsar site ▪ Carlingford Lough SPA ▪ Glas Eileanan SPA ▪ Gogledd Bae Ceredigion/ Northern Cardigan Bay SPA ▪ Irish Sea Front SPA ▪ Lindisfarne SPA ▪ Lough Neagh and Lough Beg SPA ▪ Marwick Head SPA ▪ Monach Islands SPA ▪ Mousa SPA ▪ Northumberland Marine SPA ▪ Northumbria Coast SPA ▪ Outer Ards Ramsar site ▪ Outer Ards SPA ▪ Outer Firth of Forth and St Andrews Bay Complex SPA ▪ Papa Stour SPA ▪ Papa Westray (North Hill and Holm) SPA ▪ Pentland Firth Islands SPA ▪ Priest Island (Summer Isles) SPA ▪ Ramna Stacks and Gruney SPA ▪ Seas off Foula SPA ▪ Seas off St Kilda SPA ▪ St Abb's Head to Fast Castle SPA ▪ Teesmouth and Cleveland Coast Ramsar site ▪ Teesmouth and Cleveland Coast SPA ▪ Tips of Corsemaul and Tom Mor SPA ▪ West Inverness-shire Lochs SPA ▪ Ythan Estuary and Meikle Loch Ramsar site ▪ Ythan Estuary, Sands of Forvie and Meikle Loch SPA

C.2.14 NE [\[RR-061\]](#) confirmed it agreed with the applicant's screening conclusions within the HRA Screening Report [\[APP-028\]](#) in respect of offshore ornithology. NRW(A) [\[REP1-099\]](#) also advised that a comprehensive list of Welsh SPAs and Ramsar sites designated for ornithological features were considered by the applicant.

C.2.15 In response to RIESQ2 [\[PD-017\]](#), the JNCC [\[REP6-044\]](#), NRW(A) [\[REP6-053\]](#), NE [\[REP6-051\]](#) and the RSPB [\[REP6-054\]](#) agreed with the applicant's conclusions of no LSE with respect to the sites listed in Table HRA 2 above. DAERA did not respond to our request [\[PD-017\]](#), RIESQ2] for comment on the applicant's conclusions of no LSE with respect to the above sites.

- C.2.16 We are content that an LSE on the above sites can be excluded and therefore they are not considered further in this appendix.

European sites for which the applicant concluded LSE on some or all qualifying features

- C.2.17 At the point of application, the applicant concluded in its HRA Screening Report [\[APP-028\]](#) that the proposed development would be likely to give rise to significant effects, either alone or in combination with other projects or plans, for 1 site designated for Annex I habitat, 8 sites designated for Annex II migratory fish, 8 sites designated for Annex II marine mammals and 69 sites designated for offshore ornithology. These were identified in table 2.3 of the RIES [\[PD-017\]](#).
- C.2.18 The qualifying features screened in by the applicant are detailed in tables 5.2 and 6.2 and appendices 1 and 2 of the HRA Screening Report [\[APP-028\]](#) updated in [\[REP3-006\]](#). The effect pathways are listed by receptor group in tables 5.1 to 8.1 of the same document.
- C.2.19 The applicant's screening conclusions in respect of Annex I habitat, Annex II migratory fish and Annex II marine mammals were not disputed during the examination. NE [\[RR-061\]](#) and [\[REP3-092\]](#) and NRW(A) [\[REP1-099\]](#) and [\[REP6-053\]](#) confirmed agreement with the conclusions as relevant to the sites for which they are ANCBs. DAERA did not respond to our request [\[PD-017\]](#), RIESQ6] for comment on the applicant's approach to screening of the 2 European sites in Northern Ireland designated for Annex II marine mammals.
- C.2.20 We [\[PD-011\]](#), ExQ1HRA8] sought clarification on the applicant's rationale for screening out LSE from the impact pathway of indirect effects to SPA and Ramsar site bird qualifying features from changes to habitats and prey species. The applicant [\[REP3-068\]](#), ExQ1HRA8] explained its reasoning and NE's Risks and Issues Log [\[REP4-067\]](#) stated that it has concluded that impacts to prey fish losses are deemed unlikely despite proximity to Liverpool Bay SPA.
- C.2.21 As described in table 2.6 of the RIES [\[PD-017\]](#) we also sought clarification on the applicant's approach to screening the little gull qualifying feature of Liverpool Bay SPA and chough and short eared owl qualifying feature of the SSSP SPA. The applicant provided clarification and updates to the HRA Screening Report [\[REP3-006\]](#) to resolve these queries.
- C.2.22 We noted and queried through the RIES, the rationale for certain species being scoped out when it appeared that the same reason had been given for the screening conclusion but there were inconsistencies in the screening in or out decision. The applicant [\[REP5a-058\]](#) clarified that errors were present in the RIAA [\[APP-027\]](#) and that herring gull at Ailsa Craig SPA and kittiwake at Handa SPA should have been screened out; these errors were corrected in [\[REP5a-009\]](#).
- C.2.23 DAERA did not comment on the applicant's approach.

In-combination effects

- C.2.24 Section 4.4.4 of the HRA Screening Report [APP-028] updated to [REP3-006] detailed the applicant's overarching approach to assessing in-combination effects. The projects included in the in-combination assessment were detailed in table 4.1.
- C.2.25 Section 3.6 of the RIAA [APP-027] updated to [REP5a-009] sets out the components and location of the Morgan and Morecambe Transmissions Assets (M&MTA) project. The RIAA sets out that where a pathway for in-combination effects between the proposed development and the M&MTA project has been identified, a separate 'combined' assessment has been undertaken as an additional step within the in-combination assessment. This was informed by the M&MTA project Preliminary Environmental Information Report.
- C.2.26 In relation to ornithology, we sought clarification [PD-011, ExQ1BEM44] for the screening out of Oriel and Arklow wind farms from the in-combination assessment. The applicant responded [REP3-068, ExQ1BEM44] to state that the applications were submitted at such a time that they could not be taken account of in the application. Morecambe Offshore Windfarm Generation Assets however had been included in the in-combination assessment for those projects. NE stated it was unable to provide a view whether the assessments undertaken for the Irish offshore wind farms (OWFs) were compatible with methodologies advised for UK assessments. NE [REP6-051] noted that "the likelihood of a meaningful in-combination effect between these windfarms and the project is low". The JNCC [REP6-044] agreed with the applicant that whilst it may be possible to apportion impacts from these wind farms, the conclusions of the RIAA are unlikely to be affected.
- C.2.27 We also queried the reasoning for Sceirde, Codling, Dublin Array and north Irish Sea wind farms having been screened in for marine mammals but not ornithology. The applicant [REP3-068, ExQ1BEM44] stated that no site-specific data or generic value data was available for these wind farms at the time of making the application. NE [REP3-092] requested these projects be included in the in-combination assessment for ornithological features. The JNCC [REP3-083] and NE [REP3-092] however, acknowledged a gap in the use of Biologically Defined Minimum Population Scale (BDMPS) as discussed in RIES paragraph 2.5.11 but also acknowledged that this could not be addressed within the examination.
- C.2.28 No other plans or projects were highlighted by IPs.
- C.2.29 Where the applicant's screening exercise established the potential for LSE to arise from the proposed development alone, the potential for in-combination effects was also considered and discussed in the applicant's HRA Report [APP-027] updated to [REP5a-009].

LSE assessment conclusions

- C.2.30 We are satisfied, on the basis of the information provided, that that all relevant European sites and potential impact pathways have been identified and assessed by the applicant.
- C.2.31 Taking into account the reasoning set out above, we conclude there would be potential for LSE from the proposed development alone or in-combination for the following UK European sites, including the qualifying features detailed in Tables 5.2 and 6.2 and appendices 1 and 2 of the HRA Screening Report [[APP-028](#), updated in [[REP3-006](#)] for the effect pathways listed by receptor group in tables 5.1 to 8.1.

Annex I habitats

- Shell Flat and Lune Deep SAC

Annex II migratory fish

- River Derwent and Bassenthwaite Lake SAC
- River Eden SAC
- River Ehen SAC
- Solway Firth SAC
- Dee Estuary/Aber Dyfrdwy SAC
- River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid SAC
- Afon Gwyrfaï a Llyn Cwellyn SAC
- Afon Eden – Cors Goch Trawsfynydd SAC

Annex II marine mammals

- Bristol Channel Approaches/ Dynesfeydd Môr Hafren SAC
- North Channel SAC
- Strangford Lough SAC
- Bae Ceredigion/ Cardigan Bay SAC
- Gogledd Môn Forol/ North Anglesey Marine SAC
- Gorllewin Cymru Forol/ West Wales Marine SAC
- Sir Benfro Forol/ Pembrokeshire Marine SAC
- Pen Llŷn a'r Sarnau/ Llyn Peninsula and the Sarnau SAC

Offshore ornithological features

- Bowland Fells SPA
- Coquet Island SPA
- Flamborough and Filey Coast SPA
- Leighton Moss Ramsar site
- Martin Mere Ramsar site
- Martin Mere SPA
- Mersey Estuary Ramsar site
- Mersey Estuary SPA
- Mersey Narrows and North Wirral Foreshore Ramsar site
- Mersey Narrows and North Wirral Foreshore SPA
- Morecambe Bay and Duddon Estuary Ramsar site
- Morecambe Bay and Duddon Estuary SPA
- North Pennine Moors SPA

- Ribble and Alt Estuaries Ramsar site
- Ribble and Alt Estuaries SPA
- South Pennine Moors Phase 2 SPA
- The Dee Estuary Ramsar site
- The Dee Estuary SPA
- Liverpool Bay / Bae Lerpwl SPA
- Copeland Islands SPA
- Larne Lough Ramsar site
- Larne Lough SPA
- Rathlin Island SPA
- Sheep Island SPA
- Strangford Lough Ramsar site
- Strangford Lough SPA
- Ailsa Craig SPA
- Buchan Ness to Collieston Coast SPA
- Calf of Eday SPA
- Canna and Sanday SPA
- Cape Wrath SPA
- Copinsay SPA
- East Caithness Cliffs SPA
- Fair Isle SPA
- Farne Islands SPA
- Fetlar SPA
- Flannan Isles SPA
- Forth Islands SPA
- Foula SPA
- Fowlsheugh SPA
- Handa SPA
- Hermaness, Saxa Vord and Valla Field SPA
- Hoy SPA
- Isles of Scilly SPA
- Mingulay and Berneray SPA
- North Caithness Cliffs SPA
- North Colonsay and Western Cliffs SPA
- North Rona and Sula Sgeir SPA
- Noss SPA
- Ronas Hill - North Roe and Tingon Ramsar site
- Ronas Hill - North Roe and Tingon SPA
- Rousay SPA
- Rum SPA
- Shiant Isles SPA
- Solway Firth SPA
- St Kilda SPA
- Sule Skerry and Sule Stack SPA
- Sumburgh Head SPA
- Treshnish Isles SPA
- Troup, Pennan and Lion's Heads SPA
- West Westray SPA
- Anglesey Terns/ Morwenoliaid Ynys Môn SPA
- Berwyn SPA

- Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island (ACBI) SPA
- Grassholm SPA
- Migneint-Arenig-Dduallt SPA
- Sgomer, Sgogwm a Moroedd Penfro/ Skomer, Skokholm and the Seas off Pembrokeshire SPA
- Traeth Lafan/ Lavan Sands, Conway Bay SPA
- Ynys Seiriol/ Puffin Island SPA

C.3 CONSERVATION OBJECTIVES

- C.3.1 The conservation objectives for all SACs and SPAs for which an LSE was identified by the applicant at the point of the application, were identified within the RIAA [[APP-027](#)] updated in [[REP5a-009](#)].
- C.3.2 Conservation objectives were not provided for any of the Ramsar sites for which an LSE was identified but the applicant assessed the Ramsar sites alongside the equivalent SPAs. Further to ExQ1 [[PD-011](#), ExQ1HRA9], the applicant [[REP3-068](#), ExQ1HRA9] stated that the ANCBs do not produce specific conservation objectives for Ramsar sites, and that the assessment was carried out on the basis that the SPA objectives apply to the corresponding Ramsar site. NE [[REP6-051](#), RIESQ7] confirmed that the applicant's approach was acceptable where there is an overlap between the features of the relevant SPA and Ramsar site. NRW(A) [[REP6-053](#), RIESQ7] was also content with this approach for Ramsar sites in Wales. DAERA did not respond.
- C.3.3 The RIAA [[APP-027](#)] reported that the following SACs with Annex I habitat, Annex II migratory fish and Annex II marine mammal qualifying features were in unfavourable condition:
- Dee Estuary/ Aber Dyfrdwy SAC - sea lamprey
 - River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC - Atlantic salmon, river lamprey and sea lamprey
 - Afon Eden Afon Eden - Cors Goch Trawsfynydd SAC - Atlantic salmon
 - Afon Gwyrfaï a Llyn Cwellyn SAC - Atlantic salmon
 - River Eden SAC - Atlantic salmon, river lamprey and sea lamprey
 - River Ehen SAC - Atlantic salmon, river lamprey and sea lamprey
 - Strangford Lough SAC - harbour seal
- C.3.4 The RIAA [[APP-027](#)] identified several SACs for which the conservation status was unknown at the time of assessment. We [[PD-011](#), ExQ1HRA10] sought an update from the applicant, who confirmed [[REP3-068](#)] that it had not identified any further information about the River Derwent and Bassenthwaite Lake SAC and that on the NatureScot website the marine habitats of the Solway Firth SAC remained as 'not assessed.' The applicant did not comment on the other SACs with an unknown conservation status in its response.
- C.3.5 Ornithological qualifying features were identified for SPA and Ramsar sites, but the RIAA [[APP-027](#)] did not identify their condition status. The applicant's

‘without prejudice’ derogation case [APP-029] identified a ‘restore’ target for the breeding population of lesser black back gull (LBBG) at Morecambe Bay and Duddon Estuary (MBDE) SPA/ Ramsar site and a maintain target for the same feature at Ribble and Alt Estuary (RAE) SPA/ Ramsar site. NE [RR-061] and NRW(A) [REP6-053] advised that there is a restore objective for distribution (population and supporting habitat) of the red-throated diver (RTD) feature at Liverpool Bay SPA. In response to ExQ2 HRA2 [PD-015], NE clarified that the ‘restore’ objective is an overarching objective for all activities within the site. It goes on to state that *“a “Restore” target for a given feature inherently includes all the requirements that a “Maintain” target would, along with additional aims to improve the condition of the site, when possible”*.

C.3.6 We [PD-017, RIESQ8] requested the applicant to confirm the conservation status of European sites with ornithological features considered in the RIAA. The applicant provided details of the condition status in table 4.1 in appendix A to [REP5a-058]. It stated that for English sites, NE had not published condition assessments but advised that where supplementary advice indicates a restore objective this may be indicative that the feature is in unfavourable condition. In addition to those listed above, the following European sites and features were identified in [REP5a-058] as having ‘restore’ objectives:

- Bowland Fells SPA – hen harrier and merlin.
- FFC SPA – black-legged kittiwake.
- Isles of Scilly SPA – LBBG and seabird assemblage.
- Martin Mere SPA/ Ramsar site – Eurasian teal and northern pintail.
- Mersey Estuary SPA/ Ramsar site – Eurasian teal, northern pintail, European golden plover and common redshank.
- Mersey Narrows and North Wirral Foreshore SPA/ Ramsar site – bar-tailed godwit and little gull.
- MBDE SPA/ Ramsar site – grey plover, sanderling, ruddy turnstone, dunlin, herring gull, sandwich tern, common tern, seabird assemblage.
- North Pennine Moors SPA – hen harrier, merlin, peregrine falcon and European golden plover.
- RAE SPA/ Ramsar site – common tern and seabird assemblage.
- South Pennine Moors Phase 2 SPA – merlin.

C.3.7 The applicant [REP5a-058] advised that the following Northern Irish European sites and features were in unfavourable condition based on DAERA summary feature condition status:

- Strangford Lough SPA/ Ramsar site – common tern.

C.3.8 The applicant [REP5a-058] identified the following Scottish European sites and features being in unfavourable condition based on NatureScot site condition monitoring database:

- Ailsa Craig SPA – LBBG, black-legged kittiwake and herring gull.
- Buchan Ness to Collieston Coast SPA – northern fulmar and black-legged kittiwake.

- Calf of Eday SPA – seabird assemblage.
- Cape Wrath SPA – northern fulmar and black-legged kittiwake.
- Canna and Sanday SPA – herring gull, European shag and seabird assemblage.
- Copinsay SPA - northern fulmar and seabird assemblage.
- Fair Isle SPA – seabird assemblage.
- Fetlar SPA – great skua and seabird assemblage.
- Flannan Isles SPA- northern fulmar, Leach’s storm petrel and common guillemot.
- Foula SPA - northern fulmar, great skua, Atlantic puffin and seabird assemblage.
- Fowlsheugh SPA – northern fulmar and black-legged kittiwake.
- Handa SPA – northern fulmar, black-legged kittiwake, common guillemot, razorbill and seabird assemblage.
- Hermaness, Saxa Vord and Valla Field SPA – northern fulmar, great skua, RTD, Atlantic puffin and seabird assemblage.
- Hoy SPA - northern fulmar, great skua and seabird assemblage.
- Mingulay and Berneray SPA – northern fulmar.
- North Caithness SPA – black-legged kittiwake.
- North Colonsay and Western Cliffs SPA – black-legged kittiwake.
- North Rona and Sula Sgeir SPA - northern fulmar, Leach’s storm petrel and common guillemot.
- Noss SPA - northern fulmar and seabird assemblage.
- Rousay SPA – seabird assemblage.
- Shiant Isles SPA – northern fulmar, common guillemot and seabird assemblage.
- St Kilda SPA – northern fulmar, Manx shearwater, great skua, common guillemot and Atlantic puffin.
- Sule Skerry and Sule Stack SPA – Leach’s storm petrel.
- Sumburgh Head SPA – seabird assemblage.
- Troup, Pennan and Lion’s Heads SPA – northern fulmar and black-legged kittiwake.
- West Westray SPA – black-legged kittiwake and seabird assemblage.

C.3.9 The applicant [[REP5a-058](#)] identified the following Welsh European sites and features being in unfavourable condition based on NRW(A)’s indicative condition assessments:

- Berwyn SPA – hen harrier, merlin and peregrine falcon.
- The Dee Estuary SPA and Ramsar site – common shelduck, Eurasian teal, northern pintail, grey plover, bar-tailed godwit, dunlin, common tern.
- Traeth Lafan / Lavan Sands, Conwy Bay SPA – great crested grebe.

C.3.10 NRW(A) [[REP6-053](#)] also responded to us on this point, advising that based on best available evidence from the Seabird Count (2015 to 2021) the following sites for which it is the ANCB, are in unfavourable condition:

- Skomer, Skokholm and Seas off Pembrokeshire SPA – LBBG
- Grassholm SPA – gannet (due to effects of mass mortality from HPAI)

C.3.11 At the final deadline, NRW(A) [[REP6-053](#)] advised that Welsh only SPAs would receive new condition assessments later in 2025 and that there are

currently no new assessments for cross-border SPAs. Updated condition assessments were not available by the close of the examination.

- C.3.12 We [\[PD-011\]](#), ExQ1HRA17] sought clarification from NE about supplementary advice on conservation objectives for the RAE SPA, which applies a more stringent maintain objective of 8,097 breeding pairs of LBBG compared with the citation figure of 4,100 breeding pairs. NE [\[REP3-092\]](#), ExQ1HRA17] advised that the higher abundance is a long-term change that better reflects favourable condition. The revised baseline is based on median of counts for 2014, 2015 and 2016.

C.4 FINDINGS IN RELATION TO ADVERSE EFFECTS ON INTEGRITY

- C.4.1 The European sites and qualifying features identified in table 2.3 of the RIES [\[PD-017\]](#) were further assessed by the applicant to determine if they could be subject to adverse effects on integrity (AEoI) from the proposed development, either alone or in-combination. The assessment of AEoI in the RIAA, was made in light of the conservation objectives for the European sites [\[REP5a-009\]](#).

- C.4.2 The applicant concluded that the proposed development would not adversely affect the integrity of any of the European sites and features assessed, either alone or in combination with other projects or plans. The assessment outcomes were summarised in table 10.1 of the RIAA [\[REP5a-009\]](#); detailed assessments were provided by receptor group as follows:

- Annex I habitats – section 6
- Annex II migratory fish – section 7
- Annex II marine mammals – section 9
- Offshore ornithological features – section 8

- C.4.3 The full list of projects included in the in-combination assessments was set out in the HRA Screening Report [\[REP3-006\]](#), table 4.1]. Projects from the full list that had potential to cause in-combination effects were considered by receptor group in the assessment of AEoI. Projects were identified by receptor group as follows:

- Annex I habitats – table 6.4 of the RIAA [\[REP5a-009\]](#)
- Annex II migratory fish – table 7.5 of the RIAA [\[REP5a-009\]](#)
- Annex II marine mammals – table 5.1 of ES appendix 11.4 [\[REP4-019\]](#)
- Offshore ornithological features – table 8.11 of the RIAA [\[REP5a-009\]](#) and table 12.59 of ES chapter 12 [\[REP6-009\]](#)

IN-COMBINATION ASSESSMENT (GENERAL)

In-combination effects - Morgan and Morecambe Transmission Assets

- C.4.4 The applicant considered in-combination effects with other plans and projects and specifically considered the in-combination effects between the proposed development and the M&MTA project. In response to our questions ExAQ1 [\[PD-011\]](#) as to how the M&MTA project was considered in the in-

combination assessments, the applicant initially referred to [\[REP3-068, ExQ1GEN8\]](#) and ES chapter 23: Summary: Generation and Transmission Assets Assessment [\[APP-060\]](#) and assessments in each ES topic chapter. The applicant considered that submitting the full M&MTA assessment would be disproportionate. However, it subsequently submitted an updated 'Report on Interrelationships with Other Infrastructure Projects' (which was updated throughout the examination [\[REP6-030\]](#)). This included a revised assessment.

In-combination effects - securing coordination between the proposed development and Irish Sea OWFs

- C.4.5 We [\[PD-011, ExQ1HRA29\]](#) sought clarification from the applicant as to what formal mechanisms would be used in the absence of legal agreement(s) to ensure meaningful engagement on coordination between the proposed development and other projects in the Irish Sea to reduce effects, particularly in relation to noise impacts on marine receptors. We requested advice from NE and the Marine Management Organisation (MMO) on whether a mechanism would be useful, and if they had any examples.
- C.4.6 The applicant [\[REP3-068, ExQ1HRA29\]](#) stated that coordination did not need to be legally secured between projects and that the proposed development and other OWFs; had committed to mitigation, in relation to construction noise impacts, with sufficient alignment to reduce underwater noise impacts. This view was reiterated by Morgan Offshore Wind Limited and Mona Offshore Wind Limited [\[REP3-107\]](#) who are the promoters of the Morgan Offshore Wind Generation Assets and Mona Offshore Wind Farm projects. The MMO [\[REP5-075\]](#) stated that it did not deem it necessary for this to be legally secured. NE ExQ1HRA29 [\[REP3-092\]](#) stated that it encouraged co-ordination however deemed that it cannot be secured as mitigation unless secured through conditions and included in a named plan. This matter was not one that progressed through the examination.

Use of gap filling and historical data

- C.4.7 NE [\[RR-061\]](#) raised concerns in relation to the applicant's methodology for the cumulative effects assessment noting that there were gaps in the assessment for historical projects where a zero impact had been assumed. Concerns were also raised relating the qualitative methodology for applying data from other wind farms to historical wind farms and that this methodology was not consistent with other Irish Sea OWFs currently seeking development consent (for example, Mona OWF).
- C.4.8 The RSPB [\[RR-073\]](#) recognised the difficulties in obtaining historical data. However, in its view, NE had provided a pragmatic solution, whilst acknowledging that this was imperfect. It recognised that the applicant had provided an alternative methodology; it encouraged the use of that the approach promoted by the ANCBs.
- C.4.9 NE [\[RR-061\]](#) noted that this approach "introduces the risk that impacts assessed are incomplete" and requested a full quantitative assessment to be presented. The applicant in response provided.

- C.4.10 NE [\[REP3-090\]](#) [\[REP5-044\]](#) noted that following the submission of the updated information, methodological issues with the assessment are considered resolved and that it was able to provide a view on the conclusions (these are discussed in relevant section(s) of the RIES and below).
- C.4.11 NRW(A) [\[REP3-094\]](#), commenting on the inclusion of historical projects in the in-combination assessment, advised that gap filling should be undertaken for the in-combination assessment in line with that undertaken for the environmental impact assessment (EIA) cumulative effects assessment (CEA). It noted that no CEA gap filling had been undertaken for kittiwake, gannet, razorbill and puffin. It considered that this had potential implications for Welsh SPA features such as the SSSP SPA razorbill feature which was included in the applicant's in-combination assessment in the RIAA [\[REP1-012\]](#).
- C.4.12 The applicant made a number of updates to the RIAA in response to comments and NRW(A) [\[REP5-084\]](#) noted that once these updates had been included in the RIAA it would be able to confirm agreement of no AEoI alone or in-combination for all relevant marine ornithology features of Welsh SPAs screened into the assessment.
- C.4.13 NE [\[REP6-050\]](#) noted that matters relating to the in-combination assessment had been resolved through updates to the RIAA [\[REP5a-009\]](#). NRW(A) [\[REP6-036\]](#), in the SoCG with the applicant, set out agreement in relation to in-combination assessments and gap filling for historic projects.

Overlap of projects

- C.4.14 NE [\[RR-061\]](#) queried whether projects which have limited or no overlap for construction or operational timescales with the proposed development should be screened out of the in-combination assessment. We queried [\[PD-011\]](#), ExQ1BEM46] whether background mortality rates would include any of the OWFs covered by this description (that is 'not operational'). If so, we queried whether this data would require removal to ensure that the approach was not overly precautionary. The details of the discussion of this matter during the examination is set out in RIES paragraphs 3.3.39 – 3.3.46.
- C.4.15 NE [\[REP3-092\]](#) concluded that basing the assessment on as-built parameters would provide more accurate in-combination assessments. However, it listed numerous methodological issues with this approach and therefore this was not a matter that could be resolved within this OWF consenting round. The RSPB [\[REP3-113\]](#) echoed views expressed by NE and the JNCC, arguing that until a consent has been amended, the in-combination assessment should assess the full potential build out. The applicant [\[REP4-058\]](#) noted that it agreed that it is not possible to incorporate changes in the contributing consented wind farms during the life of a project within population viability analysis (PVA) modelling. Noting that the applicant and the IPs agreed with the potential benefits of this approach but also acknowledged the methodological issues, this matter was not progressed further.

Projects included in the in-combination assessment

- C.4.16 NRW(A) [\[REP6-053\]](#) confirmed that the RIAA [\[REP4-009\]](#) had been updated to include the Llyr 1 project but noted in [\[REP5-084\]](#) that the Barrow, North Hoyle and Rhyl Flats OWFs had not been included although Rhyl Flats had been included previously. NRW(A) considered however that the inclusion of these projects would not change the conclusions of the assessment. Therefore, at the end of the examination [\[REP6-036\]](#) NRW(A) noted it was content with the updated in-combination assessments.

In-combination effects when concluding no LSE project alone

- C.4.17 The RSPB [\[RR-073\]](#) questioned the applicant's approach of not considering an impact in the in-combination assessment where a conclusion of no LSE on the project alone had been made. The RSPB stated that, in its view, this is equivalent to 'de-minimis' arguments which had been raised in the examination of the other OWFs. The RSPB quoted case law to justify its position, noting that this approach was 'particularly problematic' for the GBBG qualifying feature of the Isles of Scilly SPA.
- C.4.18 The SoCG with the RSPB [\[REP5-044\]](#) stated that disagreement in relation to this matter remained and, whilst discussions were developing, this matter was unlikely to be resolved within the examination timescales.

OFFSHORE ORNITHOLOGY - OVERARCHING ASSESSMENT MATTERS

Initial positions

- C.4.19 NE [\[RR-061\]](#) noted that the applicant had followed NE's recommended methodology and produced reference population figures which NE agreed with. It agreed that the applicant had sufficient baseline information for the ornithological assessment. NE confirmed that the key pressures, impacts and receptors had been identified. NE was satisfied that the project-alone would not result in any significant level of impact to migratory birds that are qualifying features of SPAs or Ramsar sites within 100km of the proposed development.
- C.4.20 NRW(A) [\[REP1-099\]](#) stated it was content with the applicant's methods used to calculate the breeding season and non-breeding season(s) apportionment values for impacts from the project alone to SPAs and Ramsar sites.
- C.4.21 The RSPB [\[RR-073\]](#) [\[REP5a-033\]](#) [\[REP6-054\]](#) did not set out any agreed matters. It noted that it did not have confidence in the baseline densities presented. It also identified the pathway of collision risk as a result of disorientation from WTG lighting. Furthermore, it considered likely that compensatory measures (CMs) would be required for Manx shearwater and GBBG, in addition to RTD and LBBG.
- C.4.22 The JNCC [\[REP3-083\]](#) confirmed agreement of no AEoI of SSSP SPA on the following qualifying features:
- European storm-petrel (project alone or in-combination)
 - Manx shearwater (project alone)

- Atlantic puffin (project alone or in-combination)
- LBBG (project alone)

C.4.23 The JNCC also agreed with the conclusion of no AEoI on Manx shearwater qualifying feature of the Irish Sea Front SPA.

Welsh sites

C.4.24 NRW(A) [REP1-099] noted concerns relating to seasonality apportionment and requested the applicant to undertake updates to the RIAA. The applicant undertook this and despite noting errors in seasonal definitions [REP5-085], NRW(A) [REP6-053] confirmed no AEoI project alone or in-combination on all Welsh sites.

Highly Pathogenic Avian Influenza (HPAI)

C.4.25 The RSPB [RR-073] set out that, in its view, the assessment had not fully accounted for the potential for population scale impacts to be magnified through the effects of Highly Pathogenic Avian Influenza (HPAI). The applicant [PD1-011] highlighted that consideration of the effects of HPAI and its relevance to the assessment were presented in section 12.6.6 of chapter 12 of the ES Offshore Ornithology [APP-049] updated at D6 [REP6-009].

C.4.26 The applicant referenced NE's advice (2022), no mechanisms or pathways have been identified whereby the proposed development would be likely to interact with or exacerbate the impacts from HPAI. It went on to state that substantial levels of precaution are inherent in the assessment in the RIAA and concluded that HPAI had been sufficiently addressed and that the assessment conclusions were suitably robust.

C.4.27 The SoCG with the RSPB [REP4-032] stated that disagreement in relation to this matter remained and, whilst discussions were developing, this matter was unlikely to be resolved within the examination timescales. The position remained the same at D5 (as per SoCG at D5a [REP5a-033]).

C.4.28 NE [REP6-051] confirmed that it was content with the applicant's consideration of HPAI in its assessment.

Ecosystem effects due to ocean stratification

C.4.29 The RSPB [RR-073] and [REP3-113] identified concerns relating to the ecosystem impacts of water column stratification on prey availability. The applicant [REP3-068, ExQ1HRA38] referred to the evidence in the ES and noted the assessment concluded the proposed development would not have any significant effect on ocean stratification. The MMO in response [REP3-085] confirmed that it was satisfied with the applicant's approach. While the RSPB maintained its position [REP4-032] [REP5a-033], it accepted that this matter would have no material impact on the assessment conclusions [REP5a-033].

Collision risk assessment (CRM)

- C.4.30 The RSPB [RR-073] raised concerns relating to CRM having not considered the Manx shearwater's attraction to light and potential to be disorientated.
- C.4.31 NE [RR-061] requested that collision risk assessments be updated to consider current population trajectories and refined apportioning of impacts. NE noted that it was unable to replicate the CRM results for little gull following the applicant's method and parameters but recognised that this was likely due to a known issue with the 'default bootstrapped flight height data file' and would investigate.
- C.4.32 NRW(A) [REP6-054] noted the RSPB's concerns in relation to CRM but noted that current methodologies were unable to model attraction to light and resulting disorientation and went on to state that it was not aware of "*evidence available to quantify risk*". As such, NRW(A) concluded that the modelling was robust.

Seasonal variance

- C.4.33 NE [RR-061] noted inconsistencies in the months assigned to each season for gannet. NE went on to advise that where migration and breeding seasons overlap, these should be considered as breeding season months. It noted that this had been applied to the collision impact assessment seasons. The applicant [PD1-011] noted this and updated its assessment of seasons for gannet [PD1-010], noting that the updates did not change the conclusions.

ExA'S CONCLUSIONS

- C.4.34 We are satisfied, based on the information provided, that the correct impacts have been assessed. This section discusses the conclusions with respect to AEol for each site.
- C.4.35 A number of matters relating to methodological issues were raised by IPs and explored through the examination; however, following updates made by the applicant and agreement demonstrated through responses to questions, there were no matters pertaining to the methodology that either remained a matter of disagreement or a matter which would change the conclusions of the assessments undertaken.
- C.4.36 Based on the findings of the examination, we are satisfied that an assessment of AEol from the proposed development in combination with other plans or projects can be based on this information and that no other plans or projects are required to be taken into account.

MITIGATION

- C.4.37 The applicant's RIAA [APP-027] updated to [REP5a-009] identified mitigation measures for each receptor group as follows:
- Annex I habitats – table 6.2
 - Annex II migratory fish – table 7.2
 - Annex II marine mammals – tables 9.2 and 9.3

- Offshore ornithological features – table 8.3

C.4.38 These were taken into account in the applicant's assessment of effects on integrity and discussed in the relevant sections below.

SITES FOR WHICH THE APPLICANT CONCLUDED NO AEOL WHERE NO CONCERNS WERE RAISED

C.4.39 The applicant concluded that the proposed development would not result in AEOL of any of the European sites assessed [[REP5a-009](#)].

C.4.40 At the close of the examination, the applicant's conclusions were not disputed by any IP in relation to the Annex I benthic habitat and Annex II migratory fish and marine mammal sites and features listed Table HRA 3 below.

C.4.41 We note that several of the European sites in Table HRA 3 below are located within Northern Irish waters. As noted previously, DAERA did not participate in the examination, therefore we do not have its view on impacts to the European sites for which it is responsible. Nevertheless, we have given consideration to the location of these sites and the relevant pathways assessed by the applicant in reaching its conclusions.

C.4.42 We are satisfied that the correct impacts have been assessed for these sites and features, and that the scope of the applicant's in-combination assessment for Annex I benthic habitat, Annex II migratory and marine mammals is correct, and no additional plans or projects need to be considered.

C.4.43 We are satisfied that on the basis of the information provided, an AEOL on the sites and features listed in Table HRA 3 below can be excluded. The complete details of these sites are provided in Table HRA 3 below.

C.4.44 Although not all sites with offshore ornithological features were explicitly identified and individually discussed in the examination, we understand the overarching methodological concerns relate to the assessment of all offshore ornithological sites; hence offshore ornithological sites are not included in the table below.

Table HRA 3: European sites for which the applicant concluded no AEol from the proposed development and for which no IPs raised concerns

European Site(s)	Qualifying Feature(s)	AEol alone OR in-combination	Mitigation required to avoid AEol	Evidence of agreement of no AEol
Annex I benthic habitat				
Shell Flat and Lune Deep SAC	Sandbanks which are slightly covered by seawater all the time	No – see section 6.4 of the RIAA [REP5a-009]	Embedded mitigation as summarised in table 6.2 of the RIAA [REP5a-009] including: - measures related to the specification, installation and monitoring of cable, scour and cable protection and WTG and offshore substation platforms (OSP) foundations, which would be detailed in a CMS. An Outline CMS [REP5a-052] was submitted; a final version would be secured by condition 9(1)(d) of the dDML (Schedule 6 of the dDCO [REP6-002]). It would address matters such as: - micrositing for foundations and cable installation to minimise seabed preparation work. - use of scour and cable protection. - burial of cables between 0.5m and 3.0m below seabed where possible, with a target depth of 1.5m to reduce EMF effects. - cable specification to reduce EMF and thermal emissions.	Agreed with NE [REP3-092] , ExQ1HRA5 and table 2] [REP6-051] , RIESQ9]

European Site(s)	Qualifying Feature(s)	AEoI alone OR in-combination	Mitigation required to avoid AEoI	Evidence of agreement of no AEoI
			○ backfill of material following burial where possible to promote recovery of habitat. ○ pile-driving in preference to drilling for foundations to minimise sub-surface sediment released into the water column. ▪ biosecurity measures to control spread of INNS, which would be listed in the PEMP. An Outline PEMP [REP5a-023] was submitted; a final version would be secured by condition 9(1)(e) of the dDML (Schedule 6 of the dDCO [REP6-002]). ▪ development and implementation of an Offshore Decommissioning Programme (to be secured through Requirement 10 of the dDCO [REP6-002] as a requirement of the Energy Act 2004).	
Annex II migratory fish – England				
River Derwent and Bassenthwaite Lake SAC	Atlantic salmon Brook lamprey River lamprey Sea lamprey	No – see section 7.9 and table 7.7 of the RIAA [REP5a-009]	Embedded mitigation as summarised in table 7.2 of the RIAA [REP5a-009] including: ▪ measures related to the specification, installation and monitoring of cable and WTG and OSP foundations, which would	Agreed with NE [REP3-092] , ExQ1HRA5 and table 2] [REP6-051] , RIESQ9]

European Site(s)	Qualifying Feature(s)	AEol alone OR in-combination	Mitigation required to avoid AEol	Evidence of agreement of no AEol
River Eden SAC	Atlantic salmon River lamprey Sea lamprey	No – see section 7.10 and table 7.7 of the RIAA [REP5a-009]	be detailed in a CMS. An Outline CMS [REP5a-052] was submitted; a final version would be secured by condition 9(1)(d) of the dDML (Schedule 6 of the dDCO [REP6-002]). It would address matters such as: ○ burial of cables between 0.5m and 3.0m below seabed where possible, with a target depth of 1.5m to reduce EMF effects. ○ cable specification to reduce EMF and thermal emissions. ○ use of scour and cable protection. ○ backfill of material following burial where possible to promote recovery of habitat. ○ construction hours, with overnight working to reduce the overall period of impacts. ○ soft start and ramp up protocol for pile driving (if piled foundations are selected).	The MMO [REP1-060] stated it deferred to NE.
River Ehen SAC	Atlantic salmon River lamprey Sea lamprey	No – see section 7.8 and table 7.7 of the RIAA [REP5a-009]	○ development and implementation of an Offshore Decommissioning Programme (to be secured through Requirement 10 of the dDCO [REP6-002] as a requirement of the Energy Act 2004).	

European Site(s)	Qualifying Feature(s)	AEol alone OR in-combination	Mitigation required to avoid AEol	Evidence of agreement of no AEol
Annex II migratory fish – England and Scotland				
Solway Firth SAC	River lamprey Sea lamprey	No – see section 7.11 and table 7.7 of the RIAA [REP5a-009]	As above for River Derwent and Bassenthwaite Lake, River Eden and River Ehen SACs.	Agreed with NE [REP3-092] , ExQ1HRA5 and table 2] [REP6-051] , RIESQ9]. NatureScot did not dispute the applicant's conclusions in [REP2-039] . It did not provide any other representations to the examination.
Annex II migratory fish – England and Wales				
Dee Estuary/ Aber Dyfrdwy SAC	River lamprey Sea lamprey	No – see section 7.4 and table 7.7 of the RIAA [REP5a-009]	As above for River Derwent and Bassenthwaite Lake, River Eden and River Ehen SACs.	Agreed with NE [REP3-092] , ExQ1HRA5 and table 2] [REP6-051] , RIESQ9]. The MMO [REP1-060] stated it deferred to NE.
River Dee and Bala Lake/ Afon Dyfrdwy	River lamprey Sea lamprey Atlantic salmon	No – see section 7.5 and table 7.7 of the		

European Site(s)	Qualifying Feature(s)	AEol alone OR in-combination	Mitigation required to avoid AEol	Evidence of agreement of no AEol
a Llyn Tegid SAC		RIAA [REP5a-009]		Agreed with NRW(A) [REP6-053], RIESQ9]
Annex II migratory fish – Wales				
Afon Gwyrfai a Llyn Cwellyn SAC	Atlantic salmon	No – see section 7.6 and table 7.7 of the RIAA [REP5a-009]	As above for River Derwent and Bassenthwaite Lake, River Eden and River Ehen SACs.	Agreed with NRW(A) [REP6-053], RIESQ9].
Afon Eden – Cors Goch Trawsfynydd SAC	Atlantic salmon	No – see section 7.7 and table 7.7 of the RIAA [REP5a-009]		
Annex II marine mammals – Northern Ireland				
North Channel SAC	Harbour porpoise	No – see section 9.4.1 to 9.4.4 of the RIAA [REP5a-009]	▪ CMS (for cable burial and specification to reduce EMF), MMMP, UWSMS, VTMP and PEMP as described above. ▪ Development and implementation of an Offshore Decommissioning Programme (to be secured through Requirement 10 of the dDCO [REP6-002] as a requirement of the Energy Act 2004).	No – DAERA did not participate in the examination.
Strangford Lough SAC	Harbour seal	No – see section 9.7.1 to 9.7.4 of the		

European Site(s)	Qualifying Feature(s)	AEol alone OR in-combination	Mitigation required to avoid AEol	Evidence of agreement of no AEol
		RIAA [REP5a-009]		

SITES FOR WHICH THE APPLICANT CONCLUDED NO AEOI AND FOR WHICH IPS RAISED CONCERNS

Sites with Annex II marine mammals qualifying features

- C.4.45 The applicant identified LSEs for 6 sites within the UK NSN designated for Annex II marine mammals and considered 2 further sites on a precautionary basis. The applicant's assessment of effects on integrity was presented at the application stage in sections 9.4 to 9.7 of the RIAA [\[APP-027\]](#).
- C.4.46 NE [\[RR-061\]](#) and NRW(A) [\[REP1-099\]](#) initially advised that AEoI from the proposed development in-combination with other projects and plans could not be excluded for the following European sites and features:
- Dynesfeydd Môr Hafren/ Bristol Channel Approaches SAC – harbour porpoise
 - Bae Ceredigion/ Cardigan Bay SAC – bottlenose dolphin and grey seal
 - Gogledd Môn Forol/ North Anglesey Marine SAC – harbour porpoise
 - Gorllewin Cymru Forol/ West Wales Marine SAC – harbour porpoise
 - Sir Benfro Forol/ Pembrokeshire Marine SAC – grey seal
 - Pen Llŷn a'r Sarnau/ Llyn Peninsula and the Sarnau SAC – bottlenose dolphin and grey seal

Mitigation

- C.4.47 Mitigation measures for marine mammals include the development and adherence to marine mammal mitigation protocols (MMMP), to be based on the draft Marine Mammal Mitigation Protocol (dMMMP) [\[APP-149\]](#) updated to [\[REP6-019\]](#), to reduce the risk of underwater noise from unexploded ordnance (UXO) clearance and driven or part-driven pile foundations. The applicant noted that a separate marine licence would be sought for UXO clearance, through which the final MMMP would be agreed, and that the dMMMP included UXO protocol measures for information only. The MMO [\[REP4-064\]](#) and the JNCC [\[REP3-082\]](#) agreed with this approach to UXO. NE [\[REP6-052\]](#) welcomed the UXO assessment and advised that it did not need further updates at this stage given the marine licence would be applied for post-consent but provided comments on the dMMMP regarding UXO clearance (as discussed below).
- C.4.48 At D2, in response to advice from NE [\[RR-061\]](#) and [\[REP3-093\]](#) that an underwater sound management strategy (UWSMS) would be better to capture measures to reduce in-combination effects than a MMMP, the applicant submitted an outline UWSMS (oUWSMS) [\[REP2-026\]](#) updated to [\[REP5a-042\]](#), and added a new condition to the draft Deemed Marine Licence (dDML) in condition 20 of schedule 6 of the dDCO [\[REP6-002\]](#) to secure a final version prior to commencement of piling activities. It stated that this would provide a strategy to reduce the magnitude of impacts from elevated underwater sound to marine mammal and fish receptors, and consequently reduce its contribution to cumulative impacts. It would consider auditory injury and behavioural disturbance.

- C.4.49 The dMMMP and oUWSMS were updated throughout the examination in response to comments from the ANCBs and other IPs with final versions being submitted [\[REP6-019\]](#) and [\[REP5a-042\]](#) accordingly.
- C.4.50 NE [\[RR-061\]](#) and [\[REP3-093\]](#) advised that there should be a commitment in the dMMMP to using noise abatement systems (NAS) during construction. NRW(A) [\[REP1-099\]](#) requested a stronger commitment to NAS in line with other OWFs. It considered the dMMMP would not sufficiently mitigate residual injury from piling. It advised that the dMMMP should commit to proportionate use of acoustic deterrent devices (ADD) to avoid excessive exposure. JNCC [\[REP3-082\]](#) advised that NAS should be considered given the predicted injury ranges using the cumulative sound exposure level (SEL_{cum}) metric, as this would reduce the range within which injury could occur and the duration that ADD would be required.
- C.4.51 The JNCC did not agree with the applicant's approach of only using permanent threshold shift (PTS) sound pressure level (SPL) to determine mitigation (rather than SEL_{cum} sound exposure levels) but the applicant [\[REP4-060\]](#) subsequently confirmed that the piling assessment was carried out using SPL and SEL_{cum}, with SEL_{cum} used to determine the ADD activation time. Furthermore, it acknowledged that for the identified impact ranges in the worst-case scenario, ADD would be insufficient.
- C.4.52 Noting the publication of the Department for Environment, Food and Rural Affairs (Defra) policy paper 'Reducing Marine Noise' and the JNCC's 'Guidelines for minimising the risk of injury to marine mammals from UXO clearance in the marine environment' in January 2025, we [\[PD-013\]](#) sought comments from NE and the MMO. NE [\[REP4-065\]](#) advised that the documents set out the expectation that from January 2025 OWF projects would need to demonstrate how they have sought to reduce underwater noise during piling. The MMO [\[REP4-064\]](#) stated that further evidence on use of NAS for piling should be provided. NRW(A) [\[REP4-074\]](#) noted that the oUWSMS [\[REP2-026\]](#) did not address the need for additional mitigation for piling identified in the Defra paper. NE [\[REP3-091\]](#) also made this observation for residual impacts to harbour porpoise.
- C.4.53 The dMMMP [\[REP4-027\]](#) and oUWSMS [\[REP4-049\]](#) were updated to acknowledge the Defra policy paper and to provide a commitment that piling mitigation would be finalised using the latest guidance. These revised plans committed to noise reduction such as NAS for the worst-case piling scenario and no high order UXO clearance at the same time as piling.
- C.4.54 NE [\[REP5-079\]](#) welcomed this and anticipated that the applicant would explain how this would be achieved. It advised that current guidance for breaks in piling should be committed to as a matter of best practice. The MMO [\[REP5-075\]](#), ExQ1BEM4 agreed with NE's comments on breaks in piling. NRW(A) [\[REP5-084\]](#) recorded various matters it raised as being closed based on amendments to the dMMMP [\[REP4-027\]](#) and oUWSMS [\[REP4-049\]](#). It had 2 key issues outstanding: UXO mitigation and alignment of the dMMMP and oUWSMS with the Defra guidance, and a commitment to

NAS to mitigate residual impacts as the dMMMP was reliant on ADD operating for 80 minutes, which was not proportionate or judicious.

- C.4.55 In response to our written question [PD-015], NE [REP5-081, ExQ2BEM1] advised that the applicant should commit to using NAS in all piling scenarios. NE [REP5-079] was unclear how implementing NAS at a specific strike rate or hammer energy would be achieved given exact values are not usually known until piling commences. Uncertainty would necessitate NAS being in place at each piling location for use if the conditions were met. The MMO [REP5-075, ExQ2BEM1] deferred to NE and highlighted that the Defra policy aimed to reduce overall noise and does not specify a level of impact.
- C.4.56 We [PD-015] sought clarification from the applicant as to why the oUWSMS only committed to NAS for the worst-case piling scenario. The applicant [REP5-070] explained that for other scenarios, design refinement or other noise reduction methods could, in its opinion, sufficiently reduce impacts. It noted that a precise NAS threshold was not specified in the Defra guidance; but this would be addressed through the final UWSMS, as set out in an updated oUWSMS [REP5a-042].
- C.4.57 In response to stakeholder comments, the applicant added wording to the oUWSMS [REP5-052] to clarify that the approach to ensuring ADD duration was appropriate would be agreed through a final version. It updated the dMMMP [REP5-028] to note that ADD deployment would be limited to the maximum permitted activation time (80 minutes) and committed to proportionate and judicious use of ADD. It further updated the dMMMP [REP5a-029] and oUWSMS [REP5a-042] to include commitments that high order UXO clearance would not be carried out at the same time as impact piling; after a break in piling of more than 10 minutes, the full mitigation procedure would be required, unless amended, based on noise reduction measures in place.
- C.4.58 We [PD-011] sought an explanation from the applicant as to other approved NAS that might be used, and circumstances in which bubble curtains would be suitable. The applicant [REP3-068, ExQ1HRA36] stated that marine conditions are dynamic, and normal practice is to wait for conditions to use bubble curtains for UXO clearance. With sufficient planning the applicant considered that this could be achieved. It was not aware of any other NAS authorised to reduce impacts of underwater noise from high order UXO clearance. Reference to other systems in the dMMMP could mean approved measures available at the point of marine licence application.
- C.4.59 In response to advice from NRW(A) [REP1-099] and our request [PD-015, ExQ2BEM6], the applicant updated the oUWSMS [REP5-052] to include a commitment to consider measures outlined in the Offshore Renewables Joint Industry Programme (ORJIP) Range dependent nature of impulsive noise (RaDIN) project in finalising the primary mitigation for the proposed development.
- C.4.60 The applicant inserted a commitment into the dDCO [REP5a-003] to use noise reduction or abatement measures where driven or part driven piles are

to be used. We [PD-017, RIESQ14] sought confirmation from the JNCC, the MMO, NE and NRW(A) as to whether their concerns had been resolved. NE [REP6-051] was confident that the applicant's commitment in the dDCO would commit it to delivery of the measures and recorded this matter as resolved in [REP6-050]. NRW(A) [REP6-053] confirmed its concerns were resolved based on the updated dMMMP and oUWSMS submitted at D5 and D5a. The MMO [REP6-045] and [REP6-046] was content provided NE were satisfied. The JNCC [REP6-044] had outstanding concerns, advising that a commitment to use NAS in the worst-case piling scenario was not compliant with the Defra policy paper. It advised that the oUWSMS should commit to low order UXO clearance as the default method in line with its own guidance; and this commitment was secured in the oUWSMS [REP5a-042].

- C.4.61 Submission of the final MMMP (for piling) and UWSMS (in accordance with the dMMMP and oUWSMS) for approval by the MMO is secured through conditions 9(1)(i) and 20 of the dDML contained within schedule 6 of the final dDCO [REP6-002]. The final dMMMP [REP6-019] and oUWSMS [REP5a-042] are certified documents under schedule 8 of the dDCO [REP6-002].
- C.4.62 Measures to minimise disturbance to marine mammals and birds from transiting vessels are described in the Outline Vessel Traffic Management Plan (oVTMP) [REP5a-031] and would be included in the final Project Environmental Management Plan (PEMP). An Outline PEMP (oPEMP) was submitted during the examination [REP5a-023]. Submission of a final offshore PEMP and final VTMP, which accord with the outline versions, would be secured through conditions 9(1)(e) and (j) of the dDML contained within schedule 6 of the dDCO [REP6-002]. The oPEMP and oVTMP are included within the list of documents to be certified under schedule 8 of the dDCO [REP6-002].
- C.4.63 At our request [EV7-006], point 14, the applicant provided an Outline Construction Method Statement (oCMS) (incorporating an Outline Cable Specification and Installation Plan (oCSIP) (Appendix A)) [REP6-034]. The oCMS included measures to be implemented during construction to avoid adverse effects on Annex I benthic habitat, Annex II migratory fish and marine mammals. The oCMS was secured by Condition 9(1)(d) of the dDML contained within schedule 6 of the dDCO [REP6-002]. It is also included within the list of documents to be certified under schedule 8 of the dDCO [REP6-002].

Bristol Channel Approaches SAC

- C.4.64 LSEs on the harbour porpoise qualifying feature were identified from PTS and disturbance due to underwater noise from piling and other sources, barrier effects as a result of underwater noise, vessel interactions, changes to prey resource, and changes to water quality during construction, operation and decommissioning. In-combination LSE were identified for the same pathways.

- C.4.65 Whilst NE [\[RR-061\]](#) initially sought clarification on the worst-case scenario for piling duration used in the assessment of Bristol Channel Approaches SAC, it was satisfied with the applicant's clarification in the dMMMP [\[REP6-019\]](#). NE [\[REP1-098\]](#) and [\[REP3-093\]](#) was not convinced that the applicant had demonstrated that 4km was an appropriate disturbance distance for noisy activities other than piling to use in the assessment (which the applicant [\[PD1-011\]](#) stated was based on ANCB recommendation) but advised this was unlikely to make a material difference to decision-making. It [\[RR-061\]](#) and [\[REP5-079\]](#) agreed that there would be no AEol of Bristol Channel Approaches SAC from the proposed development alone.
- C.4.66 As reported in the RIES [\[PD-017\]](#), table 3.1], NE [\[RR-061\]](#) had concerns about the CEA [\[APP-068\]](#), upon which the HRA in-combination assessment was based, primarily in relation to the method used to determine disturbance distance and the number of animals affected, including from combined disturbance impact. It requested updates to the CEA and HRA, and a commitment to further mitigation to ensure significant cumulative disturbance does not materialise. The applicant [\[PD1-011\]](#) justified its approach as follows:
- Cumulative piling impact assessment from effective deterrence range (EDR) radius and dose response curve (DRC) approaches, and Interim Population Consequences of Disturbance Model (iPCoD) population modelling were provided in the Marine Mammal Technical Note 2 (HRA) [\[REP1-084\]](#); table 2.14 for harbour porpoise). A potential AEol was identified using the quantified (EDR or DRC) approach but further investigation of population modelling concluded a population effect of less than 1%.
 - Full population modelling results (mean and median) were presented in section 2.1 of [\[REP1-084\]](#). The median of impacted to unimpacted population sizes was considered more robust when using lower sample sizes, and less sensitive to mis-specification of demographic parameters. For all species assessed, the modelled impact of piling in-combination fell below the threshold of a 1% annual decline in population over a 25-year period.
 - PTS numbers were included in population modelling for cumulative effects [\[APP-048\]](#). Mitigation for PTS would be secured through a MMMP.
 - A quantitative assessment of disturbance from all cumulative noise pathways was provided in [\[REP1-084\]](#), summarised in table 2.18]. Potential LSEs to harbour porpoise were identified; however, population modelling indicated no potential for a population level effect (table 2.19). It stated that a quantified assessment may not accurately represent disturbed animals due to the indicative nature of most activities.
- C.4.67 The applicant submitted an updated Marine Mammal Technical Note 2 (HRA) [\[REP3-062\]](#) providing further information on assessment of PTS in the CEA and updated the in-combination assessment in the RIAA [\[REP4-009\]](#) accordingly. The RIAA [\[REP4-009\]](#) also reflected detail in an updated ES chapter 11 [\[REP4-011\]](#).

C.4.68 NE [\[REP5-079\]](#) advised that it had no outstanding concerns with the assessment or conclusions for the Bristol Channel Approaches SAC and that position remained unchanged at examination close.

C.4.69 We note that at the close of examination, there were no matters which were disputed by IPs in relation to the harbour porpoise qualifying feature of the Bristol Channel Approaches SAC.

Cardigan Bay SAC, Llyn Peninsula and the Sarnau SAC, North Anglesey Marine SAC, Pembrokeshire Marine SAC and West Wales Marine SAC

C.4.70 LSEs on the European sites and qualifying features listed below were identified from PTS and disturbance due to underwater noise from piling and other sources, barrier effects from underwater noise, vessel interactions, changes to prey resource, and changes to water quality during construction, operation and decommissioning. For seal qualifying features, disturbance at haul out sites was also identified as an LSE pathway. In combination LSE were identified for the same pathways.

- Cardigan Bay SAC – bottlenose dolphin and grey seal
- Llyn Peninsula and the Sarnau SAC – bottlenose dolphin and grey seal
- North Anglesey Marine SAC – harbour porpoise
- Pembrokeshire Marine SAC – grey seal
- West Wales Marine SAC – harbour porpoise

C.4.71 NRW(A) [\[REP1-099\]](#) did not dispute the conclusion of no AEoI project-alone but did not initially agree with the conclusion of no AEoI from the proposed development in-combination with other plans and projects. The JNCC [\[REP3-082\]](#) provided advice on the North Anglesey Marine SAC, stating that given the distance between the proposed development and the SAC, it did not anticipate an AEoI but had concerns about information in the RIAA regarding disturbance from piling, including the approach to in-combination assessment. The JNCC was disappointed by the applicant's assessment of decommissioning effects but advised [\[REP6-044\]](#) that the matter was resolved noting that the approach used (as further described by the applicant in [\[REP4-060\]](#)) was the current industry standard.

C.4.72 NRW(A) [\[REP1-099\]](#) raised concerns about the CEA in the EIA, which the HRA in-combination assessment was based on. It advised that if the applicant updated the CEA, it may be able to agree the HRA in-combination conclusions. Its concerns related to:

- assumptions made about construction timescales
- screening out of underwater noise and effects from shipping
- aggregate extraction and dredging in the Celtic and Irish Sea (CIS) Management Unit (MU)
- absence of assessment of additional impact load during operation

C.4.73 NRW(A) [\[REP3-094\]](#) stated that the CEA should consider the sum of all impacts, otherwise the potential disturbance may be artificially limited to piling days alone. The JNCC [\[REP3-082\]](#) also requested more information

about how in-combination assessment conclusions were reached for piling in respect of the North Anglesey Marine SAC.

- C.4.74 The applicant's Marine Mammal Technical Note 2 – HRA [\[REP3-062\]](#) and updated the Marine Mammal CEA Screening [\[REP4-019\]](#) to reflect additional information about Irish projects from NRW(A) and shipping, operational OWF maintenance, and decommissioning of infrastructure impacts as part of the in-combination assessment. It updated the RIAA [\[REP4-009\]](#) accordingly and maintained its conclusion of no AEol on any Welsh SAC.
- C.4.75 NRW(A) [\[REP4-074\]](#) considered that the information did not sufficiently justify the applicant's in-combination assessment approach. It raised concerns about PTS and additive effects. It highlighted that the latest model for simulating population effects of noise (DEPONS) makes it possible to simulate ship noise, and that seismic survey and vessel noise can be included in iPCoD modelling. Its concern about additional impact load was not addressed, as a long-term cumulative stressor load on the MU population was not considered.
- C.4.76 We, in ExQ2GEN2 and 2BEM5 [\[PD-015\]](#), asked the applicant to respond. The applicant [\[REP5-070\]](#) maintained its method was suitable and followed approaches used in consented OWF projects. It stated that a snapshot of the maximum number of animals potentially disturbed at one time allows assessment, relative to the reference population, which could be impacted. The applicant confirmed that sufficient mitigation was secured and noted that NRW(A) agreed no AEol to the Welsh SACs for the proposed Mona and Morgan OWFs. It updated the RIAA [\[REP5-010\]](#) to provide clarity, and to cross-reference to further detail in ES chapter 11 [\[REP5-012\]](#). It stated [\[REP5-060\]](#) that 2 aggregate and dredging projects were assessed in [\[REP4-019\]](#) as having a limited scale of effect.
- C.4.77 NRW(A)'s [\[REP5-084\]](#) view on the method and evidence was unchanged but it advised that it could conditionally accept the in-combination conclusions (noting the scale of impacts and location outside Welsh waters) if the applicant updated its assessment to make it explicit that all animal numbers disturbed were snapshots at a single point in time and that conclusions for long-term cumulative population effects from all other impact pathways (except piling), including repeated disturbance events, were based on the applicant's expert judgement. The applicant updated the RIAA [\[REP5-010\]](#) accordingly, and NRW(A) [\[REP6-053\]](#), RIESQ10] confirmed it agreed with the applicant's conclusions of no AEol for the Welsh SACs with Annex II marine mammal qualifying features. The JNCC [\[REP6-044\]](#), RIESQ9 and RIESQ12] was also content and confirmed that the proposed development was unlikely to have an AEol to the North Anglesey Marine SAC.
- C.4.78 We note that at the close of examination, there were no matters which were disputed by IPs in relation to the marine mammal qualifying features of Cardigan Bay SAC, Llyn Peninsula and the Sarnau SAC, North Anglesey Marine SAC, Pembrokeshire Marine SAC and West Wales Marine SAC.

ExA's conclusions on sites with Annex II marine mammals qualifying features

- C.4.79 We are satisfied, based on the evidence provided, that the applicant's in-combination assessment is an adequate basis for determining effects on qualifying features of the Bristol Channel Approaches SAC, Cardigan Bay SAC, Lleyn Peninsula and the Sarnau SAC, North Anglesey Marine SAC, Pembrokeshire Marine SAC and West Wales Marine SAC. We note the applicant's commitment to use of NAS and amendments made to the dMMMP [REP6-019] and oUWSMS [REP5a-042] during the examination. We also note the provision of the oCMS [REP6-034] and oPEMP [REP5a-023]. Final versions of these plans would be secured through conditions in the dDML, as set out in schedule 6 of the dDCO [REP6-002]. They are also certified documents in schedule 8 of the dDCO [REP6-002]. Providing that the proposed mitigation measures are adhered to, we conclude that AEoI from the proposed development can be excluded, either alone or in combination with other plans or projects, on all SACs designated for Annex II marine mammal features, and for all LSE pathways, considered in the applicant's assessment.

SITES WITH ORNITHOLOGICAL QUALIFYING FEATURES

- C.4.80 The applicant identified LSEs for 69 sites within the UK NSN designated for ornithological features. The applicant's assessment of effects on integrity was presented in sections 8.3 to 8.86 of the RIAA [REP5a-099].
- C.4.81 NE [RR-061] and NRW(A) [REP1-099] initially advised that AEoI from the proposed development alone or in-combination with other projects and plans could not be excluded for the following European sites and features:
- Copeland Islands SPA – Manx shearwater
 - Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA – Manx shearwater
 - Grassholm SPA – gannet
 - Irish Sea Front SPA – Manx shearwater
 - Isles of Scilly SPA – GBBG and Manx shearwater
 - Liverpool Bay / Bae Lerpwl SPA – little gull (non-breeding), RTD (non-breeding), common scoter and waterbird assemblage (non-breeding).
 - Morecambe Bay Duddon Estuary SPA and Ramsar site – LBBG (breeding and non-breeding) and seabird assemblage (breeding).
 - Ribble and Alt Estuary SPA and Ramsar site – LBBG (breeding) and seabird assemblage (breeding)
 - Rum SPA – Manx shearwater
 - St Kilda SPA – Manx shearwater
 - SSSP SPA – Manx shearwater, puffin, LBBG, seabird assemblage
- C.4.82 Several of the applicant's conclusions of no AEoI in relation to these European sites and their qualifying features were disputed by IPs and were discussed throughout the examination. The account of the examination of these matters is set out in the following sections.

C.4.83 The RSPB [[RR-073](#)] stated that in relation to collision risk, it considered that AEol cannot be ruled out for the following:

Project alone

- Manx shearwater for the following SPAs:
 - Irish Sea Front SPA
 - Copeland Islands SPA
 - Aberdaron Coast and Bardsey Island SPA
 - SSSP SPA
 - Rum SPA
 - Isles of Scilly SPA
 - St Kilda SPA

In-combination

- LBBG (qualifying feature of MBDE SPA / Ramsar Site and the RAE SPA/ Ramsar site)
- GBBG (qualifying feature of Isles of Scilly SPA)

C.4.84 The RSPB [[RR-073](#)] also stated that it was unable to rule out AEol on displacement of RTD qualifying feature of the Liverpool Bay SPA.

C.4.85 NRW(A) [[REP1-099](#)] agreed with the applicant that, for the Welsh SPAs and Ramsar sites assessed, the predicted impacts from the Morecambe Generation Assets project-alone are small and equate to less than 1% of baseline mortality of the respective bird populations. It goes on to state that this would not be detectable against background mortality and hence could agree that an AEol can be ruled out for these sites and feature combinations. NRW(A) however also stated minor corrections to figures were required for the following sites and qualifying features:

- Aberdaron Coast and Bardsey Island (AC & BI) SPA: for Manx shearwater qualifying feature
- SSSP SPA: for Manx shearwater and puffin qualifying features
- Grassholm SPA: for gannet qualifying features

C.4.86 NatureScot [[REP2-039](#)] noted agreement of no AEol on Manx shearwater feature of the Rum SPA. However, it noted that the assessment does not “*take account of the recent review on the risk of collision and displacement in procellariiforms*” (Procellariiformes is an order of seabirds that comprises; the albatrosses, the petrels and shearwaters, and two families of storm petrels). NatureScot highlighted the potential impacts of light attraction for the species. The applicant in response [[REP3-069](#)] reviewed the potential lighting effects in the ES and cross referred these to the assessment for Rum SPA in the RIAA [[REP1-012](#)]. It advised that lighting is very unlikely to affect disturbance and displacement effects significantly. Therefore, in its view, the conclusions of the assessment are unchanged. No further representations on this point were received from NatureScot.

Mitigation

- C.4.87 The main mitigation option for ornithological impacts was that of consideration of the air gap for the turbine generators. In response to NE's comments [RR-061], the applicant [REP1-081] undertook modelling to review the effectiveness of a further potential increase in the air gap (from 25m to 30m above high astronomical tide (HAT)) in reducing effects on LBBG. The review concluded that this would result in a reduction of predicted mortality of a fraction of one bird. It stated that when considered in-combination with other projects and plans, the reduction is undetectable at a population level, comprising a maximum difference of 0.03% (from 11.52% to 11.49%). Furthermore, it stated that it would limit the use of available construction vessels. NE [REP2-037] stated that the applicant had sufficiently demonstrated this alternative was unlikely to affect the assessment outcome.
- C.4.88 We [PD-011] sought clarification from the applicant why an air gap change would limit the vessels able to install at the hub height. The applicant [REP3-068, ExQ1HRA16] stated that an increase in air gap would result in an increase in hub height for any given WTG (not a reduction in the blade diameter), which would necessitate a higher crane hook height, thereby reducing the number of suitable vessels. Reducing blade diameter to maintain hub height would reduce power output.

Copeland Islands SPA, Irish Sea Front SPA, Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA, Skomer, Skokholm and the Seas off Pembrokeshire/ Sgomer, Sgogwm a Moroedd Penfro SPA, Rum SPA, Isles of Scilly SPA, St Kilda SPA – Manx shearwater

- C.4.89 Collision risk for Manx shearwater was identified as an LSE for these sites.
- C.4.90 The RSPB [RR-073] stated that in relation to collision risk, AEol cannot be ruled out for Manx shearwater on the following sites: Irish Sea Front SPA, Copeland Islands SPA, ACBI SPA, SSSP SPA, Rum SPA, Isles of Scilly SPA and St Kilda SPA project alone.
- C.4.91 The RSPB stated that this was as a result of methodological concerns and the use of historical data (discussed above) and impacts as a result of collision. It noted that due to the diel variations of the species and the timings of the aerial surveys, data was "unlikely to properly characterise activity". Furthermore, it noted the potential for light-induced disorientation by nocturnally active seabirds causing greater collisions. The RSPB also highlighted its view that HPAI had not been adequately considered within the assessment (discussed above). The RSPB considered CMs would likely to be required for Manx shearwater.
- C.4.92 The applicant [PD1-011] provided a response for each of the RSPB's concerns in relation to the assessment undertaken. It maintained that the surveys undertaken were robust and representative. It noted that the assessment did not differentiate between day and night-time activities and therefore displacement figures were not affected by this as a mean peak seasonal abundance was used. It went on to state that studies have

indicated that the project site is not of particular importance to foraging Manx shearwater. Furthermore, that impacts, based on published evidence, are likely to be higher closer to breeding colonies and these are some distance from the proposed development site. In relation to lighting, the applicant recognised this as a potential issue but one that is most likely to affect fledglings (noting that the proposed development site is some distance from breeding sites) and often worse with bright lights, and not those on turbines. It concluded that the parameters for the assessment were agreed by ANCBs. Both the applicant and the RSPB cited scientific publications as evidence.

- C.4.93 We, in ExQ1 1BEM50 [\[PD-011\]](#), requested both the applicant and the RSPB to submit any publications cited in their representations into the examination. The RSPB [\[REP3-113\]](#) and the applicant explained in [\[REP3-068\]](#) that these were provided in [\[PD1-011\]](#) and [\[REP3-067\]](#).
- C.4.94 The RSPB in response to questions in the RIES, RIESQ22 [\[REP6-054\]](#) noted agreement of no AEol on the Manx shearwater qualifying feature of the Irish Sea Front SPA and therefore this matter is resolved.
- C.4.95 The RSPB [\[REP5a-033\]](#) [\[REP6-054\]](#) stated that it remained of a view that it was unable to rule out AEol for the Manx shearwater qualifying feature as a result of concerns relating to the baseline characterisation for other sites. It noted this was as a result of an industry wide limitation on data and not a project specific issue and therefore unable to be resolved within the examination. The RSPB did not suggest that CMs was required as a result of its view.
- C.4.96 NRW(A) [\[REP1-099\]](#) noted that the assessments undertaken had inconsistently assigned months within seasons with overlapping periods present in the assessments between migration and breeding seasons for Manx shearwater. This could, in the view of NRW(A), have implications for the apportionment for the Welsh sites. NRW(A) [\[REP1-099\]](#) agreed however with the applicant that for the Welsh SPAs and Ramsar sites assessed, the predicted impacts from the proposed development, project-alone are small and equate to less than 1% of baseline mortality of the respective population. This would not be detectable against background mortality and hence it could agree that an AEol can be ruled out for these sites and feature combinations. NRW(A) however did request minor corrections to figures to be undertaken.
- C.4.97 The applicant [\[REP2-027\]](#) noted these comments and provided an update in the Offshore Ornithology Technical Note (HRA) at D3 [\[REP3-058\]](#). Having reviewed the note [\[REP3-058\]](#), NRW(A) [\[REP4-074\]](#) concluded no AEol project-alone on Manx shearwater qualifying features but requested these be included in an updated version of the RIAA, specifically noting that the updated RIAA would be used as a reference for future projects and therefore correct figures should be presented.
- C.4.98 In relation to in-combination effects, NRW(A) [\[REP4-074\]](#), having reviewed [\[REP3-058\]](#), requested the applicant undertake PVA for the advised Worst-case Scenario (WCS) (not the preferred rates as undertaken currently) for

Manx shearwater. NRW(A) noted that conclusions of no AEol in-combination had been possible for the proposed Mona and Morgan OWFs, which had higher predicted in-combination impacts. It concluded that a similar conclusion was likely following further assessment work. NRW(A) provide links to the assessments provided in the examinations for the two OWFs for Manx shearwater.

- C.4.99 NRW(A) [\[REP5-085\]](#) welcomed the updated RIAA [\[REP4-009\]](#). It confirmed agreement of no AEol alone or in-combination on all Welsh sites. Furthermore, NRW(A) [\[REP6-053\]](#) noted updates to the assessments undertaken by the applicant throughout the examination and stated it was that it was able to conclude no AEol project alone or in-combination for Manx shearwater qualifying feature.
- C.4.100 NRW(A) [\[REP6-054\]](#) noted the limitations to the data collection, as noted by the RSPB, but stated that it has not raised any concerns with the baseline characterisation. It went on to note that, in its view, the significance of issues relating to data collection were *“most likely to be greatest at locations in close proximity to colonies, where Manx shearwater will often gather in larger numbers at dusk to avoid predation as adults return to the colony at night. Given the distance of the proposed Morecambe Generation Assets project array from Manx shearwater colonies, we do not consider such gatherings are likely in the array area or in close proximity to it. Therefore, we are satisfied that the distribution identified in the site-specific DAS surveys is likely to be representative of the use of the area”*. NE [\[REP6-051\]](#) provided a similar view.
- C.4.101 We note NRW(A)’s agreement of no AEol on Welsh sites and the RSPB’s view that AEol cannot be ruled out. We also recognise that the impact from lighting is most likely the greatest at colonies and that the proposed development is some distance from these locations, a matter which was not disputed. We however also recognised the acknowledgment by the RSPB that its concerns related to industry wide issues and not project specific. Furthermore, the RSPB in its final representation did not set out that CMs were required as a result of its view. As such, we agree with the applicant and NRW(A) that AEol on Manx shearwater for the sites listed above can be ruled out.

Grassholm SPA – gannet

- C.4.102 NRW(A) [\[REP1-099\]](#) noted that the assessments undertaken had inconsistently assigned months within seasons with overlapping periods present in the assessments between migration and breeding seasons for gannet. This could, in the view of NRW(A), have implications for the apportionment for the Welsh sites. NRW(A) noted that ES assessments for gannet had been updated in response to our procedural decision [\[PD1-010\]](#) but requested the applicant revisit these assessments and provide updates to the RIAA and in-combination assessments.
- C.4.103 The applicant [\[REP2-027\]](#) addressed this in an updated Offshore Ornithology Technical Note (HRA) at D3 [\[REP3-058\]](#). Having reviewed the note

[REP3-058], NRW(A) advised that the 2023 colony count was included in baseline mortality calculations, not the 2015 count, which it had previously thought that the applicant had used. The 2023 count enabled impacts of HPAI to be taken into account. It also went on to state that tracking data had shown that it was unlikely that gannets from Grassholm SPA would forage in the area of the proposed development. NRW(A) went on to state its agreement with the applicant's methodology. NRW(A) [REP4-074] concluded no AEol project alone on the gannet qualifying features but requested an updated version of the RIAA. NRW(A) [REP5-085] having reviewed the updated RIAA [REP4-009] confirmed agreement of no AEol alone or in-combination on all Welsh sites.

- C.4.104 NRW [REP6-053] noted updates to the assessment undertaken by the applicant throughout the examination that it was able to conclude no AEol project alone or in-combination for gannet qualifying feature.
- C.4.105 The RSPB [RR-073] raised concerns in relation to the applicant's methodology but also noted that its concerns were therefore unlikely to result in a conclusion of AEol and, as such, this was not a matter for the examination.
- C.4.106 We note that at the close of the examination, IPs were in agreement with the applicant of no AEol on the gannet feature at Grassholm SPA alone or in-combination and no matters were outstanding.

Isles of Scilly SPA – Manx shearwater and GBBG

Manx shearwater

- C.4.107 The RSPB [RR-073] disagreed with the conclusion of no AEol on Manx shearwater. The RSPB set out in its RR that it did not have confidence in the baseline densities presented. It also identified the pathway of collision risk as a result of disorientation from WTG lighting.
- C.4.108 The applicant [PD1-011] explained its approach to assessment of Manx shearwater and stated that it had not identified any evidence to indicate that the surveys are likely to have underestimated the daytime densities of bird occurring at the project site. It considers that the nighttime densities of Manx shearwaters are likely to be lower than during the day at the location of the proposed development. In relation to the impacts from lighting, the applicant explained that the proposed development is distant from known colonies and lighting would be a minimum required for navigation and aviation safety.
- C.4.109 The RSPB [REP5a-033] and [REP6-054] stated that it remained of a view that it was unable to rule out AEol for the Manx shearwater qualifying feature as a result of concerns relating to the baseline characterisation for other sites. It noted this was as a result of an industry wide limitation on data and not a project specific issue and therefore unable to be resolved within the examination. The RSPB did not suggest that CMs were required as a result of its view.

GBBG

- C.4.110 The RSPB [[RR-073](#)] questioned the applicant's approach of not considering an impact in the in-combination assessment where a conclusion of no LSE on the project alone had already been reached. The RSPB highlighted this approach as being "particularly problematic" for the GBBG qualifying feature of the Isles of Scilly SPA. It explained that GBBG had seen breeding numbers decline, further exacerbated by HPAI. The RSPB quoted figures from the proposed Morgan OWF project which it stated concluded a population size at the Isles of Scilly SPA to be circa 97% lower than it would have been without the Morgan OWF project in-combination with other projects.
- C.4.111 The applicant [[PD1-011](#)] in response to the RSPB's RR, stated that in relation to GBBG the predicted mortality would be substantially below one bird per annum (0.10), resulting in an increase in background mortality of 0.08%. In its view, this would not be detectable against natural variation and would not have a measurable effect on in-combination totals.
- C.4.112 The signed SoCG with the RSPB [[REP5a-033](#)] stated that disagreement in relation to this matter remained and whilst discussions were developing at an industry wide level, this matter was unlikely to be resolved within the examination timescales. It goes on to state that in its view, this is a material impact. We explored this further through the RIES, to which the RSPB responded [[REP6-054](#), RIESQ19] stating that it remained of a view that it was unable to rule out AEoI for the GBBG qualifying feature but provided no further information on this.
- C.4.113 We note the RSPB's view that AEoI cannot be ruled out for the Isles of Scilly SPA for the qualifying feature of Manx Shearwater and GBBG.
- C.4.114 We note the industry wide issues, as acknowledged by the RSPB in relation to Manx shearwater and conclude that these are not able to be resolved within this examination. We also note the location of the proposed development in relation to Manx shearwater colonies and conclude that lighting of the OWF is unlikely to result in an AEoI from collision risk from disorientation.
- C.4.115 In relation to GBBG, we acknowledge the reference to industry wide issues and the lack of detail provided by the RSPB [[REP6-054](#)] as to the justification for its view.
- C.4.116 Therefore, noting the views of NE that AEoI can be ruled out and the recognition that this is an industry wide issue, we agree with the applicant and NE that AEoI on Isles of Scilly SPA for qualifying features of GBBG and Manx shearwater can be ruled out.

Liverpool Bay / Bae Lerpwl SPA – little gull (non-breeding), RTD (non-breeding), common scoter and waterbird assemblage (non-breeding)

- C.4.117 NRW(A) [[REP1-099](#)] deferred advice on this site to NE as the proposed development site is located wholly in English waters.

- C.4.118 NE [\[RR-061\]](#) noted that potential ports for construction had not been identified, and that this information would be required to enable consideration of the best practice measures to be relied upon for mitigation for minimising displacement of sensitive species from vessel movements. It advised [\[REP6-051\]](#) noted, following an update to the Vessel Traffic Management Plan (VTMP) [\[REP5a-031\]](#), that it was content that the applicant had identified suitable measures, reflecting NE's best practice: however, this matter could not be fully resolved as the construction/ maintenance port(s) were unknown so a conclusion on the effectiveness of those measures could not be reached.
- C.4.119 NE [\[RR-061\]](#) did not agree with the conclusion of no AEol on the RTD qualifying feature for Liverpool Bay SPA. NE stated in the RR *that "the project alone will impact red-throated diver distribution over 9.07% of the total SPA and in particular 1.24% of the original SPA area, where red-throated diver densities were sufficiently high for these areas to qualify for inclusion within the SPA". It went on to state that, "the projects impact is slightly reduced when considered in-combination as some areas of impact are closer to other OWFs. We advise that it is appropriate that displacement impact is assigned to the OWF in closest proximity"*.
- C.4.120 NE [\[RR-061\]](#) advised that 53.29% of the total SPA boundary and 42.55% of the 'original' SPA boundary would be impacted by in-combination displacement effects. NE went on to calculate that the project's contribution of 8.75% of the total SPA boundary and 1.06% of the 'original' SPA boundary, noting that the contributions were lower in-combination due to other OWFs being in closer proximity to the SPA. NE agreed with the applicant that the greater impact is on the 'original' SPA boundary. NE suggested that the applicant should endeavour to increase the distance of the proposed development from the 'original' SPA boundary.
- C.4.121 NE [\[RR-061\]](#) referred to previous OWF decisions in comparison with the conclusions being made for the proposed development. The applicant referred to the Awel y Môr OWF decision where the SoS in that case concluded no AEol. The applicant stated that the impact of the project was 'substantially less' than Awel y Môr.
- C.4.122 NE, in section 3 [\[REP4-054\]](#), the background for the 'original' and 2017 boundary interaction with the proposed development. [\[REP4-054\]](#) figure 1 depicts this for RTD and common scoter and also shows the relationship to area impacted by Awel y Môr OWF. The applicant [\[EV4-006\]](#) and [\[EV4-007\]](#) maintained that TCE's Round 4 Plan Level HRA had concluded no AEol, and it considered that nothing had changed to alter this conclusion. The parameters considered for the plan level HRA were the same as the project level HRA.
- C.4.123 The applicant provided [\[REP1-082\]](#) 'Offshore Ornithology Technical Note 3 (red-throated diver at Liverpool Bay SPA Update Assessment)'. Having reviewed this document, NE [\[REP3-092\]](#) [\[REP3-090\]](#) confirmed its view of AEol on RTD at Liverpool Bay SPA remained. In response to ExQ1 HRA12,

NE [REP3-092] clarified the conservation objective for which it determined AEoI could not be ruled out.

C.4.124 Discussion between the applicant and NE continued on this [REP3-090] and NE [REP4-066] noted that it was able to conclude no AEoI project alone on the qualifying feature of RTD but continued to advise of an AEoI in-combination. NE also raised at D4 [REP4-066] that, in its view, monitoring for RTD would be required pre-construction to enable change and distribution to be understood post-construction. The applicant in response to ExQ3 [PD-018, ExQ3BEM2] set out how this could be achieved post consent. Whilst NE [REP5-083] did not agree that the matter was resolved, it stated that further progress was unlikely within the examination.

C.4.125 NE [REP5-082] provided its view on the confidence level in the CMs proposed by the applicant. it stated:

“We recognise that, given the location of this measure in Scotland, the targeting of breeding rather than non-breeding RTD and the fact that the breeding origins of the divers that overwinter in Liverpool Bay are uncertain, there would not necessarily be any direct benefit to the impacted population. In any event, the measure would not address the disturbance and displacement (effectively felt as habitat loss) impacts of the project on non-breeding RTD. Nevertheless, there would be connectivity with the National Site Network (NSN) through potential recruitment into Scottish SPAs designated for breeding RTD, and possibly also to the Scottish and English SPAs designated for non-breeding red-throated diver”.

C.4.126 NE [REP5-082] noted that in its view; *“In any event, the measure would not address the disturbance and displacement (effectively felt as habitat loss) impacts of the project on non-breeding RTD”.* NE predicted that if the successful, the measures would recruit two additional adult RTDs into the population per year.

C.4.127 Noting the positions of IPs and the applicant, we continued to explore mitigation options for RTD to ensure that the mitigation hierarchy had been fully explored. We sought clarification ExQ3 [PD-018] on the generation capacity stipulated through the Agreement for Lease (AfL) and implications of delivering fewer turbines. TCE [REP5a-074] declined to answer the question on the basis that the terms of the AfL *“are of a commercial and confidential nature”*. However, the applicant [REP5a-057, paragraph 4] confirmed *“the generating capacity under the AfL is set at 480 [megawatt (MW)]”*. The applicant continued: *“There is a mechanism to reduce this, however, only with the agreement of The Crown Estate. Any reduction can only be agreed if TCE is satisfied with it and if it complies with two criteria: the specified Minimum Density Requirement and the Minimum Capacity. Under the AfL, the Minimum Density Requirement is 375MW, calculated in respect of the whole of the Development Site (which is wider than the Order Limits, as it is based on the Applicant's original lease bid area). The Minimum Capacity is a percentage of the generating capacity (360MW)”*.

- C.4.128 In [\[REP5a-057\]](#), paragraph 16] the applicant confirmed the Project Design (or ‘Rochdale’) Envelope for the proposed development *“has been developed to accommodate a range of reasonably foreseeable turbine capacities while constructing the 480MW project objective (and agreed with TCE) – 35 x 13.5MW machines to 30 x 16MW machines (which are both capacities available or in development in the wind turbine market)”*.
- C.4.129 Figures 2.1 and 2.2 [\[REP5a-057\]](#) set out the buffer zones from the boundary of the ‘original’ Liverpool Bay SPA in 500 metre (m) increments. A 7km buffer results in a ‘loss’ of 1 turbine and a 10km buffer results in the ‘loss’ of 14 turbines. The applicant went on to explain that the current indicative layout, shown as part of the application documentation, is unable to take account of unknown restrictions such as archaeological buffers which would be identified at the detailed design stage.
- C.4.130 The applicant [\[REP5a-057\]](#) set out its view in relation to the HRA ‘no alternative solutions’ test, noting the need for the test to consider for whether an alternative solution can be provided that still meets the project objectives which is less damaging on the SPA. The applicant argued that it is currently impossible to determine the project’s viability tipping point, as the detailed design and economic parameters of the proposed development are still several years away from being finalised. The applicant deemed that any reduction in the site at this stage would ‘risk achieving’ project objective 1 [\[REP5a-007\]](#) and the delivery of 480MW of energy. It also set out that it would ‘jeopardise’ project objectives 2 and 3 of delivering significant electricity capacity in the UK and maximising generation capacity at a low cost from viable developable seabed. The applicant further stated that the SoS would *“need to be satisfied that such a buffer would actually be effective in appreciably reducing any adverse effects on site integrity”*. The applicant contends (referencing [\[REP1-082\]](#)) that no suggested buffer would appreciably reverse effects on RTD, restating that the area supporting RTD of the ‘original’ Liverpool Bay SPA boundary is more than 10km from the application site (referencing [\[REP4-054\]](#)). For these reasons the applicant’s position was that any additional buffer is not an alternative solution in terms of HRA.
- C.4.131 To enable full consideration of mitigation measures available to the applicant, we sought further comments as to how many turbines could be removed from the array (thus increasing the buffer to the ‘original’ SPA boundary). The applicant [\[REP5a-058\]](#) in response referred back to its [\[REP5a-057\]](#) detailed above. NE was requested to set out the distance (buffer) which in its view would be required to enable a conclusion of no AEoI project-alone or in-combination. In response NE in [\[REP6-051\]](#), which it based on information provided by the applicant in [\[REP5a-057\]](#), stated that a 10km Shell Flat buffer scenario is the most conservative buffer, taking into account the ‘original’ Liverpool Bay SPA boundary and the Shell Flat area.
- C.4.132 The reference to a ‘Shell Flat buffer’ was the first time this had been raised in examination, and we were unclear as to the applicability of this reference. The applicant [\[REP5a-057\]](#) referred to a request, from NE (outside of the examination), to consider implications of buffers around the most sensitive

areas within the Liverpool Bay SPA, including the area of Shell Flat which we assume is the source of the reference. The applicant provided figures 2.3 and 2.4 in its representation to demonstrate this. Due to the timing of the representation, we were unable to seek clarification on the relevance and applicability of avoiding this area.

C.4.133 NE set out [\[REP6-051\]](#) the following in relation to buffers:

- 10km Shell Flat buffer – AEoI in-combination can be ruled out
- 8km Liverpool Bay SPA ('original' boundary) buffer - includes Shell Flat 10km buffer with the additional benefit of reducing disturbance to a larger proportion of the 'original' SPA boundary
- 7.5km Liverpool Bay SPA ('original' boundary) buffer – AEoI in-combination can be ruled out which includes the majority of the 10km Shell Flat buffer

C.4.134 NE recognised in its representation the potential for further design refinement which could alter the number of turbines which would be removed as a result of the buffers outlined above. It concluded that *"As with the 8km SPA buffer, the 7.5km SPA buffer would also provide the added benefit of reducing potential displacement effects to a larger proportion of the original SPA boundary"*.

C.4.135 The applicant noted in its closing submissions [\[REP6-040\]](#) that *"It is expected that NE will, at Deadline 6, submit where they consider the contribution to in-combination effects would allow no AEoI to be concluded. The Applicant will not have had the benefit of this submission when preparing this document"*. NE [\[REP6-051\]](#), in response to RIESQ35 referring to the buffers set out by the applicant, went on to state that in its view *"AEoI could also be ruled out under the 7.5km buffer"*. NE went on to note that this it also sought a commitment to placing of turbines to ensure the consideration of both the Shell Flat and Liverpool Bay buffers. NE remained of the view that AEoI in-combination without a buffer could not be ruled out. The SoS may wish to seek the applicant's view on this final position from NE.

C.4.136 We note, in relation to AEoI on RTD at the Liverpool Bay SPA, that progress was continuing to be made at the close of examination by both NE and the applicant regarding mitigation potential for displacement effects. We note NE's preference for mitigation for displacement effects rather than CM as a result of concerns relating to compensation efficacy. Furthermore, we acknowledge the requirements under The Habitats Regulations to consider any potential mitigation can be applied to avoid AEoI before moving to derogations. As such, noting that the application of buffers remained unresolved at the close of examination, based on the evidence in front of us, and with the agreement of NE, we consider that provided the proposed development is further than 7.5km from the 'original' boundary of the Liverpool Bay SPA, we would be able to conclude that there would be no AEoI on the RTD qualifying feature of the Liverpool Bay SPA.

C.4.137 We consider that this would represent 'mitigation' in the strict sense of the term, since it would reduce the parameters under which the proposed

development could be built. In normal English this restriction would represent ‘avoidance’ since it would avoid the proposed development having a harmful effect on the RTD qualifying feature of the Liverpool Bay SPA and thus be at the highest level in the relevant hierarchy.

- C.4.138 We conclude that, in our view, mitigation options appear to be available which have not been fully explored and/ or secured to enable a conclusion of no AEol on RTD qualifying feature at Liverpool Bay SPA. We therefore suggest that the SoS undertakes consultation with the applicant and NE on this matter.

MBDE SPA and Ramsar site – LBBG (breeding and non-breeding) and seabird assemblage (breeding)

- C.4.139 NE [\[RR-061\]](#) disputed the applicant’s conclusions of no AEol on the LBBG and seabird assemblage (breeding) qualifying features of the MDDE SPA.

Breeding estimates

- C.4.140 NE [\[RR-061\]](#) [\[REP2-038\]](#) considered that the applicant’s breeding estimates for LBBG were out of date and provided what it deemed more appropriate figures. The applicant provided an Offshore Ornithology Technical Note 2 (HRA) [\[REP1-081\]](#) noting the use of the revised figures provided by NE and concluding that they did not change the assessment’s conclusions. The applicant [\[REP6-051\]](#) agreed that this matter has been resolved, and the information provided in the RIAA.
- C.4.141 The applicant undertook a PVA for the LBBG population [\[REP1-081\]](#) which demonstrated a 0.90% reduction in annual population growth rate and a 27.75% reduction in annual population size after 35 years compared to an unimpacted scenario. NE [\[REP3-090\]](#) welcomed the PVA but contended that the results when considering in-combination effects did not meet the conservation objectives.
- C.4.142 Two scenarios were run, with and without the proposed development. NE noted that the colony at South Walney in MDDE SPA is gradually recovering following the installation of predator fencing. NE set out that, in its view, the apportioned impact is therefore likely to be an underestimate. NE stated that as the population continues to increase with more chicks, the number of LBBG using the area of the proposed development will increase and therefore so would the number of individuals at risk of collision. As such NE concluded that AEol on MDDE SPA and Ramsar site for LBBG in respect of collision risk in-combination could not be ruled out.
- C.4.143 The applicant responded [\[REP4-058\]](#) to acknowledge NE’s comments and reiterated its position of no AEol for the LBBG feature of MDDE SPA and Ramsar site (due the very small project-alone effect). It also noted NE’s broad agreement with the ‘without prejudice’ derogation case [\[REP3-008\]](#). NE [\[REP4-066\]](#), suggested that to address the uncertainty in the predicted figures, the applicant would consider monitoring. Monitoring would enable it to confirm whether more LBBG would be found during the breeding season

during construction/ operation to determine whether predicted collision impacts were accurate. NE [\[REP5-083\]](#) confirmed that updated colony counts had been provided in the updated documents and carried through to the RIAA and therefore this matter was resolved.

AEol on LBBG

- C.4.144 NE [\[RR-061\]](#) raised concerns in relation to the in-combination assessment for LBBG and the proxy used for apportioning impacts from other projects. NE noted the proximity of the Ormonde, Walney 1 and 2, Walney Extension and West of Duddon Sands OWFs to the proposed development and highlighted that together they have a relatively large, predicted number of LBBG collisions. It considered the use of the proposed development as a proxy for this cluster of OWFs as likely to significantly underestimate the total in-combination impact apportioned to the MDBE SPA. NE stated that it was unable to rule out AEol (in-combination) on the LBBG qualifying feature of MBDE SPA and Ramsar site [\[RR-061, REP1-098, REP2-038\]](#). Additionally, NE [\[RR-061\]](#) noted that the applicant's PVA demonstrated a reduction in population size and growth rate.
- C.4.145 Disagreement in relation to the application of TCE's Round 4 Plan Level HRA was articulated by NE [\[REP3-092\]](#) and the applicant [\[REP3-068\]](#). The applicant noted that the level of information available to TCE was not site specific and noted that it had predicted higher mortality from the project alone or in combination than the applicant had in the RIAA. The applicant stated that, in its view, that this supported conclusions in the RIAA. NE [\[REP3-092\]](#) acknowledged that information informing the assessments would be different and therefore the conclusions may not align however highlighted that 'projects must still adhere the requirements of their seabed lease'.
- C.4.146 The applicant [\[REP4-058\]](#) maintained that the project alone contribution would be below the threshold for an in-combination effect.

AEol on LBBG monitoring

- C.4.147 NE [\[REP4-066\]](#) raised a further issue relating to the monitoring of LBBG as a result of its view that the current figures are an underestimate. It stated that the applicant did not deem this to be necessary, NE considered that monitoring would be able to determine whether more LBBGs are present, particularly during the breeding season. The applicant in response to ExQ3 [\[PD-018, BEM2\]](#) set out how this could be achieved post consent. Whilst NE [\[REP5-083\]](#) did not agree that the matter was resolved, it stated that further progress was unlikely within the examination.
- C.4.148 Despite the applicant updating information pertaining to the assessment of collision impacts on LBBG during the examination and matters relating to the use of proxies for apportioning resolved, NE [\[REP5-078\]](#) remained of the view that AEol could not be ruled out as articulated in the D6 Risks and Issues log [\[REP6-052\]](#).

- C.4.149 The RSPB [RR-073] noted it was unable to conclude no AEol in-combination for the LBBG feature of the MDBE SPAs due to collision mortality. The applicant responded [PD1-011] to note the small project alone impacts would result in no measurable contribution to in-combination effects. The RSPB's representations at D3 and D4 did not specifically reference the LBBG qualifying feature at MBDE SPA and Ramsar site.
- C.4.150 The RSPB's SoCG with the applicant [REP5a-033] and response to the RIES [REP6-054] stated that it remained of a view that it was unable to rule out AEol for the LBBG qualifying feature in-combination.
- C.4.151 NE [REP6-052] also noted that this remained a matter of disagreement at the close of examination. NE [REP6-050] however noted that whilst this is a matter of disagreement, there is a partial solution and that the *"in-principle compensation measures presented are capable of delivering appropriate compensation, provided they are implemented at least at the scale advised by Natural England"*. This is discussed in the section below.

Conservation objectives

- C.4.152 We noted in the RIES [PD-017] that the applicant's 'without prejudice' derogation case [APP-029] identified a restore target for the breeding population of LBBG at MBDE SPA and a maintain target for the same feature at RAE SPA. We [PD-011, ExQ1HRA17] sought clarification from NE about why supplementary advice on conservation objectives for the RAE SPA applies a more stringent maintain objective of 8,097 breeding pairs of LBBG compared with the citation figure of 4,100 breeding pairs. NE [REP3-092, ExQ1HRA17] advised that the higher abundance is not a short-term fluctuation but a long-term change that better reflects favourable condition. It stated that the revised baseline used by the applicant is based on an average of the median of 2014, 2015 and 2016 counts.
- C.4.153 We note the views at the end of examination of the RSPB and NE that AEol in-combination cannot be ruled out and the applicant's conclusions that AEol in-combination can be ruled out. We deem that there remains uncertainty in relation the numbers of LBBG present at the affected colonies and as such we are not convinced that the assessment undertaken does not represent an underestimate. Furthermore, we are required to consider the 'restore' objective for the qualifying feature of the site and therefore consider than any impact has the potential to result in AEol. Noting the evolution of discussion regarding potential for AEol on the LBBG qualifying feature of MBDE SPA and Ramsar site from collision impacts, we agree with NE that AEol cannot be ruled out.

RAE SPA and Ramsar site – LBBG (breeding) and seabird assemblage (breeding).

- C.4.154 NE [RR-061] considers that AEol cannot be ruled out for LBBG at RAE SPA and Ramsar site (as noted also above for MDBE SPA) due to in-combination collision impacts. NE noted that the results of the applicant's PVA indicated a significant reduction in population size and growth rate for LBBG. NE

acknowledged that the contribution of the project was small but retained concerns about the approach used for apportioning of impacts.

- C.4.155 NE noted that it was particularly concerned regarding impacts to the SPA given recent population declines and that the proposed development's impacts are predominantly apportioned to this SPA. Any changes in the population should be 'reflected in the mortality increase calculation'. This would then enable NE to advise on the project alone impacts in the context of the likely AEol in-combination.
- C.4.156 The applicant [PD1-011] responded to [RR-061] to note that 'without prejudice' CMs had been provided in the Outline Compensation Implementation and Monitoring Plan (oCIMP) [APP-030] (later updated on other matters to [REP5a-013]), should the SoS conclude that AEol cannot be ruled out.
- C.4.157 The applicant in response to ExQ1HRA2 [REP3-068] in relation the applicability of TCE Round 4 Plan Level HRA noted that *"the R4 HRA predicted a maximum mortality of 3.1 birds as a result of the Project but has not quantified in-combination mortality. This compares with a predicted mortality of 0.69 birds for the Project, and 36.82 birds in-combination, as presented in the Offshore Ornithology Technical Note 2 (HRA) Rev 02 (Document Reference 9.23) submitted at Deadline 3"*. It went on to state that this demonstrates that the project contribution would be comparable or less than the Plan Level HRA and therefore that the conclusion of no AEol alone or in-combination can be relied upon for this proposed development.
- C.4.158 NE [REP3-090] welcomed the PVA on LBBG at RAE SPA and Ramsar site. However, it concluded that there would be a 0.54% reduction in annual population growth rate and a 17.83% reduction in annual population size compared to an unimpacted scenario after 35 years, when considering the in-combination effect which would not meet the conservation objectives. It welcomed the provision of two modelling outputs, with and without the proposed development. Due to the low population counts at the site, NE concluded that it is imperative that any further deterioration is prevented. It therefore concluded that AEol on the LBBG feature of RAE SPA and Ramsar site in-combination with other plans and projects cannot be ruled out.
- C.4.159 NE [REP3-090] reiterated its views on AEol. It acknowledged the low contribution of project impacts to the in-combination effect but also its view that the collision risk figures are likely to be an underestimate. It noted agreement with the applicant that increasing the air gap would not make a significant difference to the impact. NE stated it had been working with the applicant on a proposed derogation case and was confident that this would be capable of providing adequate CMs if required.
- C.4.160 At D4 [REP4-060] the applicant welcomed NE's comments but maintained that there would be no AEol for LBBG alone or in combination on the LBBG qualifying feature of the RAE SPA and Ramsar site. We [PD-015, ExQ2HRA1] sought confirmation from NE as to whether the updates provided by the applicant, once included in the assessment documents,

would enable a conclusion of no AEol on the LBBG feature of RAE SPA and Ramsar site. NE responded [REP5-081] to confirm that it remained of the view that AEol could not be ruled out in -combination. NE in its response on ornithological matters [REP5-078] noted that it remained of the view that AEol could not be ruled out for in-combination effects but was supporting the development of a derogation case which it deemed capable of delivering CMs for LBBG at both MBDE and RAE SPAs and Ramsar sites.

- C.4.161 NE [REP6-051] in response to queries in the RIES, maintained a disagreement of no AEol in-combination on LBBG for collision impacts.
- C.4.162 The RSPB [RR-073] noted it was unable to conclude no AEol in combination for the LBBG feature of the RAE SPA and Ramsar site due to collision mortality. The applicant responded [PD1-011] to note the small project-alone impacts would result in no measurable contribution to in-combination effects. The RSPB's representations at D3 and D4 did not specifically reference the LBBG qualifying feature at RAE SPA and Ramsar site. However, the RSPB [REP6-054] stated that it remained of a view that it was unable to rule out AEol for the LBBG qualifying feature, in-combination.
- C.4.163 As noted above, paragraphs C.4.152 and C.4.153 we explored the relevance and application of the conservation objectives for the qualifying feature of LBBG.
- C.4.164 Matters relating to compensation quantum are set out in section C.7 below, with CMs for the LBBG qualifying feature of the MBDE SPA and RAE SPA and Ramsar site being combined.
- C.4.165 We note the view of NE and the RSPB that AEol cannot be ruled out for the RAE SPA and Ramsar site for in-combination effects. We deem that there remains uncertainty in relation the numbers of LBBG present at the affected colonies and as such are not convinced that the assessment undertaken does not represent an underestimate. Furthermore, we are required to consider the 'maintain' objective for the qualifying feature of the site and NE's view that the in-combination effect would not meet the conservation objectives. Noting the evolution of discussion regarding potential for AEol on the LBBG qualifying feature of RAE SPA and Ramsar site from collision impacts, we agree with NE that AEol cannot be ruled out and therefore recommend CMs are taken forward.

SSSP SPA – Manx shearwater, puffin, LBBG, seabird assemblage

- C.4.166 Matters relating to Manx shearwater are discussed in paragraphs C.4.89 to and C.4.101 and paragraphs C.4.107 to above.
- C.4.167 NRW(A) [REP1-099] queried the seasonal definitions for puffins used in the assessment. The applicant provided clarification on this and updated RIAA table 8.81 [REP1-012]. The applicant [REP2-027] confirmed the definition of the breeding and non-breeding seasons used in the RIAA [APP-027]. Following this update, NRW(A) [REP4-074] confirmed agreement with the

applicant's conclusion of no AEol on SSSP SPA integrity for puffin alone or in-combination.

- C.4.168 NRW(A) [\[REP6-053\]](#) noted updates to the assessment undertaken by the applicant throughout the examination and stated that it was able to conclude no AEol project-alone or in-combination for LBBG qualifying feature.
- C.4.169 The JNCC [\[REP6-044\]](#) confirmed agreement of no AEol alone or in-combination for any of the qualifying features for the SPA.
- C.4.170 We note the conclusions relating to Manx shearwater (paragraphs C.4.181 and C.4.183). We note that matters relating to the puffin qualifying feature of the SSSP SPA have been resolved and NRW(A) confirmed in [\[REP6-053\]](#) that all matters relating to Welsh sites have been resolved. On the basis of the above information, we are satisfied that this LSE pathway would not result in AEol on the SSSP SPA from the proposed development alone or in combination.

Ailsa Craig SPA – LBBG, black-legged kittiwake and herring gull

- C.4.171 NatureScot [\[REP2-039\]](#) provided a representation confirming agreement that an AEol can be ruled out for the project alone or in combination for all Scottish SPAs and qualifying features screened into the assessment with the exception of Ailsa Craig SPA for the qualifying feature of gannet. NatureScot went on to explain that, in its view, annual mortality of gannet at Ailsa Craig SPA would be 1-13 birds per annum. It requested the applicant undertake PVA and deemed collision rates would be higher than concluded by the applicant. It also notes that the applicant has used tracking studies and has not included all gannet colonies. As such it cannot be that 100% of gannet surveyed during the breeding season originated by Ailsa Craig SPA. This matter was not followed up further and no other ANCB raised a concern in relation to this site for gannet.
- C.4.172 Whilst NatureScot raised inconsistencies between assessments undertaken for Kittiwake in relation to thresholds for assessments in Scotland, it did not raise concerns in relation to the conclusions. In relation to black-legged kittiwake and other qualifying species at the site, it agreed no AEol.
- C.4.173 NatureScot [\[REP5-086\]](#) responded to ExQ2 [\[PD-015\]](#) to note it did not have capacity to respond to further queries and no further representations were provided.
- C.4.174 We note this and are unable to progress this matter further.
- C.4.175 We conclude that the applicant's modelling did not demonstrate that an AEol would arise and whilst we note NatureScot's concerns, we consider that the evidence provided by the applicant provided objective scientific evidence that AEol can be excluded. We are satisfied that this LSE pathway will not result in AEol to the Ailsa Craig SPA from the proposed development alone or in-combination.

AEol assessment conclusions

- C.4.176 The RIAA [REP5a-009] concluded that AEol can be excluded on the European sites listed in Table HRA 3 from the proposed development alone, or in combination with other plans and projects. These conclusions were agreed with ANCBs [RR-061, REP6-051, REP1-099, REP6-053, REP6-044].
- C.4.177 Some of the conclusions in the RIAA [REP5a-009] about SACs designated for Annex II marine mammals in English and Welsh water were subject to examination through our written questions, ISHs and representations from ANCBs. By the close of examination, NE [REP6-051], NRW(A) [REP6-053] and the JNCC [REP6-044] advised that AEol could be excluded from the proposed development alone, or in combination with other plans and projects, to all qualifying features of the SACs assessed for AEol.
- C.4.178 Further to the applicant's updates in the RIAA [REP5-010], NRW(A) confirmed [REP5-084] that an AEol could be ruled out for the project alone or in-combination for all Welsh SPAs and bird qualifying features screened into the assessment.

OVERALL CONCLUSIONS

ExA's conclusions on sites with Annex II marine mammal qualifying features

- C.4.179 We note that at the close of examination, there were no matters which were disputed by IPs in relation to the marine mammal qualifying features of Bristol Channels Approaches SAC, Cardigan Bay SAC, Lleyn Peninsula and the Sarnau SAC, North Anglesey Marine SAC, Pembrokeshire Marine SAC and West Wales Marine SAC.
- C.4.180 We are satisfied, based on the evidence provided, that the applicant's in-combination assessment is an adequate basis for determining effects to qualifying features of the Bristol Channel Approaches SAC, Cardigan Bay SAC, Lleyn Peninsula and the Sarnau SAC, North Anglesey Marine SAC, Pembrokeshire Marine SAC and West Wales Marine SAC. We note the applicant's commitment to use of NAS and amendments made to the dMMMP [REP6-019] and oUWSMS [REP5a-042] during the examination. We also note the provision of the oCMS [REP6-034] and oPEMP [REP5a-023]. Final versions of these plans would be secured through conditions in the dDML, as set out in schedule 6 of the dDCO [REP6-002]. They are also certified documents in schedule 8 of the dDCO [REP6-002]. Providing that the proposed mitigation measures are adhered to, we conclude that AEol from the proposed development can be excluded, either alone or in combination with other plans or projects, on all SACs designated for Annex II marine mammal features, and for all LSE pathways, considered in the applicant's assessment.

ExA's conclusions on sites with Ornithological qualifying features

- C.4.181 We note NRW(A)'s agreement of no AEol on Welsh sites and the RSPB's view that AEol cannot be ruled out. However, we also recognised the

acknowledgment by the RSPB that its concerns relate to industry-wide issues and were not project specific. Furthermore, the RSPB in its final representation did not set out that CMs were required as a result of its view. As such, we agree with the applicant and NRW(A) that AEol on Manx shearwater for the sites listed above can be ruled out.

- C.4.182 We note that at the close of the examination, IPs were in agreement with the applicant of no AEol on the gannet feature at Grassholm SPA alone or in-combination and no matters were outstanding.
- C.4.183 We note the RSPB's view that AEol cannot be ruled out for the Isles of Scilly SPA for the qualifying feature of GBBG but that this relates to information available across the industry. Therefore, noting the views of NE that AEol can be ruled out, we agree with the applicant and NE of AEol on Isles of Scilly SPA for qualifying features of GBBG and Manx shearwater can be ruled out.
- C.4.184 We note that progress continued to be made at the close of examination by both NE and the applicant regarding potential mitigation for displacement effects relating to AEol on RTD of the Liverpool Bay SPA and the application of buffer zones. However, this matter was unresolved. NE preferred mitigation of displacement effects due to its concerns regarding compensation efficacy [[REP5a-070](#)]. We note that there is emphasis in the Habitats Regulations on the avoidance of impacts. As such, based on the evidence in front of us, and NE's position that if the proposed development was greater than 7.5km from the 'original' boundary of the Liverpool Bay SPA it could conclude no AEol on the RTD qualifying feature of the Liverpool Bay SPA, we consider that a buffer zone of 7.5km should be imposed on the proposed development.
- C.4.185 We consider that this would represent 'mitigation' in the strict sense of the term, since it would reduce the parameters under which the proposed development could be built. In normal English this restriction would represent 'avoidance' since it would avoid the proposed development resulting in an AEol of the RTD qualifying feature of the Liverpool Bay SPA and thus be at the highest level in the mitigation hierarchy. We conclude that mitigation options are present to enable a conclusion of no AEol on RTD qualifying feature at Liverpool Bay SPA.
- C.4.186 We note the views at the end of examination of the RSPB and NE that AEol in-combination cannot be ruled out for LBBG for RAE SPA/Ramsar Sites and MBDE SPA/Ramsar sites. It is also noted that the applicant maintained its conclusion that AEol can be ruled out. Acknowledging the concerns in relation to colonies numbers raised by IPs and the conservation objectives in relation to both sites, we concluded that AEol cannot be ruled out.
- C.4.187 We note the conclusions relating to Manx shearwater above (paragraphs C.4.181 and C.4.183). We also note that matters relating to the puffin qualifying feature of the SSSP SPA have been resolved and that NRW(A) confirmed in [[REP6-053](#)] that all matters relating to Welsh sites have been resolved. On the basis of the above information, we are satisfied that this

LSE pathway would not result in AEol the SSSP SPA from the proposed development alone or in-combination.

- C.4.188 We note that NatureScot were unable to fully participate in the examination and therefore initial concerns expressed in relation to the gannet qualifying feature of Ailsa Craig SPA were unable to be explored. Despite this, we have considered its representation, and the evidence set out by the applicant and are satisfied that this LSE pathway will not result in AEol to the Ailsa Craig SPA from the proposed development alone or in-combination.
- C.4.189 Based on the findings of the examination, we are satisfied that AEol on all qualifying features of relevant European sites can be excluded from the proposed development alone or in-combination, with the exception of the following:
- We have found that an AEol from the proposed development in-combination with other plans and projects cannot be excluded beyond reasonable scientific doubt for the LBBG qualifying feature of the MBDE SPA and Ramsar site and RAE SPA and Ramsar site due to collision risk during operation.
 - We have found that an AEol from the proposed development in-combination with other plans and projects cannot be excluded beyond reasonable scientific doubt for the RTD qualifying feature of the Liverpool Bay SPA. However, mitigation in the form of increased buffer zones may allow the proposed development to avoid this effect.
- C.4.190 We conclude that should the SoS disagree with the conclusion in relation to LBBG and/or RTD, that 'without prejudice' measures have been provided by the applicant and are able to be relied upon, as explained below.

Engaging with the HRA Derogations

- C.4.191 If the competent authority cannot conclude the absence of an AEol, such that no reasonable scientific doubt remains, then under The Habitats Regulations the proposed development can proceed only if there are no alternative solutions and there are IROPI why the proposed development must be carried out. Suitable CM must also be secured to ensure the overall coherence of the UK NSN.
- C.4.192 The applicant considered that AEol could be excluded for the LBBG feature of the MBDE SPA and Ramsar site, and the RAE SPA and Ramsar site but provided a 'without prejudice' derogation case [[REP5a-011](#)].
- C.4.193 The applicant considered that AEol could be excluded for the RTD feature of the Liverpool Bay SPA but provided a 'without prejudice' derogations case [[REP5a-046](#)].
- C.4.194 Consideration of these matters within the examination is discussed in the following sections.

C.5 CONSIDERATION OF ALTERNATIVES

- C.5.1 The wider examination of alternatives to the proposed development in terms of the NPSs is reported in chapter 4 of this report. This includes consideration of the applicant's needs case for the proposed development, as presented in Planning Development Consent and Need Statement [APP-026], updated to [REP3-004]. This section addresses the examination of the alternative solutions test under the requirements of The Habitats Regulations.

WITHOUT PREJUDICE DEROGATION CASE – LBBG QUALIFYING FEATURE OF MBDE SPA AND RAMSAR SITE AND RAE SPA AND RAMSAR SITE

- C.5.2 The applicant provided its 'no alternative solutions' case in section 4 of [APP-029], updated in [REP1-014] [REP3-008] [REP5a-011], structured around 5 stages (or steps):
- step 1 - project need and objectives (section 4.2)
 - step 2 - define the potential for harm (section 4.3)
 - step 3 - long list of alternative solutions (section 4.4)
 - step 4 - feasibility of alternative solutions (section 4.5)
 - step 5 - would be a comparison of any feasible alternative solutions but as the applicant did not identify any, this was not required (section 4.6)

Project need and objectives

- C.5.3 The objectives of the proposed development were set out in table 4.1 of [REP5a-011] and are summarised as:
- Decarbonisation: generating around 480MW of low carbon electricity from an OWF in support of the net zero by 2050 target and UK Government ambition to deliver 50GW of offshore wind by 2030.
 - Security of supply: provide significant electricity generation capacity within the UK to support commitments for offshore wind generation and security of supply.
 - Affordability: maximising generation capacity at low cost to the consumer from viable developable seabed within the constraints of available sites and grid infrastructure.
 - Coordination: coordinate and coexist with other activities, developers and operators to use previously developed seabed to deliver the proposed development and its skills, employment and investment benefits in the local economic area.
- C.5.4 The applicant referenced sections of the Overarching National Policy Statement for Energy (NPS EN-1), the NPS for Renewable Energy Infrastructure (NPS EN-3) and the British Energy Security Strategy as the basis for its objectives.
- C.5.5 The applicant stated there is a clear and urgent need for the proposed development to help meet the decarbonisation objective and achieve the UK Government target for net zero and was positioned to contribute towards the

target of 50GW of offshore wind by 2030. The applicant provided Gantt charts to demonstrate timings [REP1-086]. Matters pertaining to the generating capacity and its relationship to the AfL were discussed through our questions [PD-018] with the applicant confirming [REP5a-057] that *“the generating capacity under the AfL is set at 480 [megawatt (MW)]”*. This was expanded upon within the same representation with the applicant stating that Project Design (or ‘Rochdale’) Envelope for the proposed development *“has been developed to accommodate a range of reasonably foreseeable turbine capacities while constructing the 480MW project objective (and agreed with TCE) – 35 x 13.5MW machines to 30 x 16MW machines (which are both capacities available or in development in the wind turbine market)”*.

Define the potential for harm

- C.5.6 The applicant summarised its conclusions on the predicted harm of the proposed development referring to the RIAA [REP5a-009], with further information in section 4.3 of [REP5a-011]. The applicant considered the scale of impacts on the SPAs and Ramsar sites to be as set out in Table HRA 4.

Table HRA 4: Applicant’s assessment of Scale of impacts on the European sites with LBBG qualifying features

Qualifying feature	Effects from the proposed development alone	In-combination effects
MBDE SPA and Ramsar site		
LBBG	Predicted increase in mortality from collision of 0.33% (increasing the existing mortality by 0.16%)	Predicted increase in mortality from collision of 22.52 birds, increasing the background mortality by 11.52%, of which the contribution from the proposed development is less than 1 bird (less than 1% increase)
RAE SPA and Ramsar site		
LBBG	Predicted increase in mortality from collision of 0.69% (increasing the existing mortality by 0.13%)	Predicted increase in mortality from collision of 36.82 birds, increasing the background mortality by 6.90%, of which the contribution from the proposed development is less than 1 bird (0.1% increase)

Long list of alternative solutions

- C.5.7 The applicant discounted the do-nothing option as it would not meet any of the project objectives for the proposed development and would not enable the proposed development to contribute to Government legislation and policy that promotes the importance of OWFs, noting that Round 4 projects could

deliver a least 8GW to contribute to the target of 50GW by 2030 and net zero by 2050.

- C.5.8 The applicant stated that in establishing the urgent need for offshore wind the NPSs do not impose a cap, and that EN-1 explains that the starting point for decision-making in relation to a derogation case is that a significant number of deliverable locations for critical national priority (CNP) infrastructure are needed.

Alternative offshore wind farm locations

- C.5.9 The applicant concluded that there were no feasible alternative locations to meet the objectives of the proposed development, noting NPS EN-1 identifies the need for multiple CNP locations and states that the fact of other potential plans or projects being deliverable in different locations to meet the need is unlikely to be treated as an alternative solution. The applicant stated that the proposed development is 1 of 6 projects selected by TCE in its Offshore Wind Leasing Round 4.

Alternative scale

- C.5.10 The applicant stated that, in response to stakeholder feedback, the array area of the proposed development was reduced during the pre-application stage from 125km² to 87km² to help facilitate co-existence with other marine users. This reduced the maximum number of WTGs from 40 to 35 (smaller) or 30 (larger). The applicant stated that any further reduction in scale would not meet the objectives of the proposed development and alternative scale was not considered further.

Alternative design

- C.5.11 The applicant discounted the alternative design of smaller rotors to reduce collision risk as it may result in a lower generating capacity, which would limit the ability of the proposed development to contribute to offshore wind and net zero targets. To achieve the same generating capacity with smaller rotor blades would require a greater number of WTGs, which the applicant said would increase the magnitude of potential effects on ornithological receptors and potentially require a larger wind farm site area. This would not meet the proposed development objectives.
- C.5.12 In response to NE's comments [\[RR-061\]](#), the applicant [\[REP1-081\]](#) undertook modelling to review the effectiveness of a further potential increase in the air gap (from 25m to 30m above high astronomical tide (HAT)) in reducing effects on LBBG. The review concluded that this would result in a reduction of predicted mortality of a fraction of 1 bird. It stated that when considered in-combination with other projects and plans, the reduction is undetectable at population level, comprising a maximum difference of 0.03% (from 11.52% to 11.49%). Furthermore, it stated that it would limit the use of available construction vessels. NE [\[REP2-037\]](#) stated that the applicant had sufficiently demonstrated this alternative was unlikely to affect the assessment outcome.

C.5.13 As discussed at paragraphs 1.4.54 to 1.4.55 of this appendix, there was discussion during examination about the potential for an air gap change.

C.5.14 NE [\[REP3-090\]](#) noted agreement with the applicant that increasing the air gap would not make a significant difference to the impact.

Alternative method

C.5.15 No alternative methods beyond scale, design and timing were identified by the applicant, as the relevant effects related to operation of the OWF.

Alternative timing

C.5.16 The applicant discounted alternative timing, such as seasonal operational timing restrictions or reducing the lifespan, on the basis that this would limit the ability of the proposed development to export low carbon electricity and therefore not satisfy the proposed development objectives.

Feasibility of alternative solutions

C.5.17 The only potential alternative solution taken forward was an increased air gap. Section 4.5 [\[REP5a-011\]](#) included information on the feasibility (financial, legal and technical) of this potential alternative solution and concluded that an increased air gap would increase risks to deliverability of the proposed development whilst delivering minimal reductions in collisions as discussed at paragraphs 1.4.54 to 1.4.55 of this appendix, for example as a result of increased load on the foundation structure, which could also reduce the availability of contractors and mean that the proposed development is reliant on development in the field.

Applicant's conclusions on alternative solutions

C.5.18 The applicant considered that it had provided a robust assessment of alternative solutions following available guidance. It concluded that *“no feasible alternative solutions, which could host comparable scale offshore wind farms consistent with the Project objectives to meet the established needs, were identified.”*

C.5.19 We are satisfied that no alternative locations or sites exist for the proposed development that would represent a feasible alternative solution. A compelling need for the proposed development has been established and we are satisfied that the ‘do nothing’ option is not a feasible alternative. Considering the information submitted by the applicant, we are satisfied that no alternative design parameters are known to be implementable that would present a feasible alternative solution for the LBBG feature of the MBDE SPA and Ramsar site and RAE SPA and Ramsar site. We consider that the alternatives assessed would not constitute an alternative solution to the objectives of the proposed development. We are satisfied that no alternative solutions exist which would deliver appreciable benefits in terms of adverse effects on the European sites.

WITHOUT PREJUDICE DEROGATION CASE – RTD QUALIFYING FEATURE OF LIVERPOOL BAY SPA

- C.5.20 Following NE's RR [\[RR-061\]](#), the applicant at D3 provided a 'Without Prejudice Derogations case – Red-throated Diver at Liverpool Bay/Bae Lerpwl SPA' [\[REP3-064\]](#). This was updated at D5 [\[REP5-054\]](#) and D5a [\[REP5a-046\]](#). This was accompanied by an 'Outline Compensation Implementation and Monitoring Plan -Red-throated diver' [\[REP3-065\]](#) and updated at D5a [\[REP5a-048\]](#). Details of the options considered for potential CM were provided in [\[REP3-064\]](#), section 6 and appendices 1 and 2].
- C.5.21 As noted above in relation to LBBG CMs, the applicant set out the same information relating to the 5 stages of consideration of the 'no alternative solutions' case and the project need and objectives.

Define the potential for harm

- C.5.22 The applicant summarised its conclusions on the predicted harm of the proposed development referring to the RIAA [\[REP5a-009\]](#) and Offshore Ornithology Technical Note 3: Red-throated diver – Liverpool Bay SPA [\[REP1-082\]](#), with further information in section 4.3 of [\[REP5a-046\]](#). The applicant considered the scale of impacts on the Liverpool Bay/Bae Lerpwl SPA.

Table HRA 5: Applicant's assessment of Scale of impacts on the European sites with RTD qualifying features

Qualifying feature	Effects from the proposed development alone	In-combination effects
Liverpool Bay SPA		
RTD	Displacement up to 2 RTDs annually with the 'original' SPA boundary (pre-2017). Leading to mortality of 0.02 birds per annum (assuming mean density and precautionary 1% mortality of displaced birds). This would increase background mortality by 0.01% (assuming an SPA population of 1,800 individuals and background annual mortality rate of 0.233).	Displacement of up to 355 RTDs, leading to mortality of 3.55 birds per annum (assuming a precautionary mortality of 1%). This would increase background mortality by 0.85% Predicted increase in in-combination mortality from collision of less than 1%, which it states would be undetectable against natural variability and have no measurable effect on distribution

Long list of alternative solutions

- C.5.23 This section reflected the same information set out above for LBBG CMs.

Do nothing scenario

- C.5.24 This section reflected the same information set out above for LBBG CMs.

Alternative offshore wind farm locations

- C.5.25 This section reflected the same information set out above for LBBG CMs.

Alternative scale

- C.5.26 The applicant stated that, in response to stakeholder feedback, the array area of the proposed development was reduced during the pre-application stage from 125km² to 87km² to help facilitate co-existence with other marine users. This reduced the maximum number of WTGs from 40 to 35 (smaller) or 30 (larger). The applicant stated that any further reduction in scale would not meet the objectives of the proposed development and alternative scale was not considered further.
- C.5.27 NE [\[RR-061\]](#) requested the applicant consider further restrictions of no turbines within the 10km buffer zone of the 'original' SPA boundary. The applicant [\[REP5a-046\]](#) stated that *"Given the buffer zones required to facilitate co-existence with other users to the west of the windfarm site, a reduction of the Project's site boundary to the east to accommodate a 10km buffer from the original SPA boundary would not meet the Project objectives in terms of the capacity of the Project, since the loss of site area to accommodate a 10km buffer would render the Project commercially unviable with insufficient remaining space to generate the required amount of electricity"*.
- C.5.28 To enable full consideration of alternatives and mitigation available to the applicant, through the RIES we sought further comments as to how many turbines could be removed from the array (thus increasing the buffer to the 'original' SPA boundary). The applicant [\[REP5a-058\]](#) in response referred to its [\[REP5a-057\]](#) detailed above. The applicant [\[REP5a-057\]](#) set out its view in relation to the HRA 'no alternative solutions' test. The applicant contended that it is not possible to know the tipping point in terms of viability of the project some years away from detailed proposed development design and economics are known. The applicant deemed that any reduction in the site at this stage would 'risk achieving' project objective 1 and the delivery of 480MW of energy. It also set out that it would 'jeopardise' project objectives 2 and 3 of delivering significant electricity capacity in the UK and maximise generation capacity at a low cost from viable developable seabed. The applicant further stated the *"need to be satisfied that such a buffer would actually be effective in appreciably reducing any adverse effects on site integrity"*. The applicant contended (referencing [\[REP1-082\]](#)) that no suggested buffer would appreciably reverse effects on RTD, restating that the area supporting RTD in the 'original' Liverpool Bay SPA boundary is more than 10km from the order limits (referencing [\[REP4-054\]](#)). For these

reasons the applicant's position is that any additional buffer is not an alternative solution in terms of HRA.

C.5.29 As discussed above, paragraphs C.4.129 to C.4.138, we explored the potential of a buffer to enable AEoI to be ruled out.

C.5.30 NE recognised in its representation [[REP6-051](#)] the potential for further design refinement which could alter the number of turbines which would be removed as a result of the buffers outlined above. It concluded that *"As with the 8km SPA buffer, the 7.5km SPA buffer would also provide the added benefit of reducing potential displacement effects to a larger proportion of the original SPA boundary"*.

Alternative design

C.5.31 Noting that the location of turbines in relation to the 'original' SPA boundary is the parameter for displacement effects, the applicant referred to comments made in relation to alternative scale. It concluded that a reduction in the number of potential turbine locations would not meet the project objectives.

Alternative method

C.5.32 No alternative methods beyond scale, design and timing were identified by the applicant, as the relevant effects related to operation of the OWF.

Alternative timing

C.5.33 The applicant discounted alternative timing, such as seasonal operational timing restrictions or reducing the lifespan, on the basis that this would limit the ability of the proposed development to export low carbon electricity and there not satisfy the proposed development objectives or deliver the reduction in impact for RTD required.

Feasibility of alternative solutions

C.5.34 The applicant [[REP5a-046](#)] noted that no feasible alternative had been identified above (step 3).

Applicant's conclusions on alternative solutions

C.5.35 The applicant considered that it had provided a robust assessment of alternative solutions following available guidance. It concluded that *"no feasible alternative solutions, which could host comparable scale offshore wind farms consistent with the Project objectives to meet the established needs, were identified"*.

C.5.36 We are satisfied that no alternative locations or sites exist for the proposed development that would present a feasible alternative solution. A compelling need for the proposed development has been established and we are satisfied that the 'do nothing' option is not a feasible alternative. In HRA terms the 'do nothing' option would fail to meet the objectives of the proposed development and is not considered an alternative solution.

- C.5.37 Considering the information submitted by the applicant and IPs however we are not satisfied that there are no further alternative design parameters known to be implementable that would present a feasible alternative solution for qualifying feature of the RTD at the Liverpool Bay SPA. We are of a view that there is potential to change the layout and/or number of turbines to facilitate a buffer to satisfy the concerns of both IPs and us.

C.6 IMPERATIVE REASONS OF OVERRIDING PUBLIC INTEREST (IRoPI)

- C.6.1 The need for the proposed development is discussed in chapter 4 of this report. This section addresses the examination of the IROPI test under the requirements of The Habitats Regulations.
- C.6.2 The applicant's IROPI cases for LBBG and RTD qualifying features were presented in [APP-029, section 5], updated in [REP1-014] [REP3-008] [REP5a-011], and [REP3-064, section 5], updated in [REP5-054] [REP5a-046] respectively. The applicant concluded that there is a demonstrable overriding public interest in the proposed development and the policy objectives it will serve, which outweighs the minimal risk and contribution of the proposed development to AEoI (if any) on designated sites.
- C.6.3 The applicant's reasoning that there is an imperative need for the proposed development included the following points (in summary):
- There is an urgent need to establish a secure, diverse, affordable and resilient energy supply and meet decarbonisation targets. This provides a clear and urgent need for the proposed development to help meet the UK Government target of 50GW of offshore wind installed capacity by 2030. The proposed development would provide around 480MW of renewable energy capacity.
- C.6.4 The applicant [REP5a-011, REP5a-046] stated that there is also a public interest in the proposed development proceeding in terms of:
- Climate change benefits (decarbonisation objective): urgent action is required to reduce rising global temperatures and to limit the effects of climate change on human health and safety by reducing GHG emissions.
 - Public electricity supply benefits (security of supply and affordability objectives): to meet targets, including net zero by 2050, renewable energy needs to be affordable, as recognised in NPS EN-1. The UK has a world leading offshore wind sector, which is well placed to benefit from investment in renewable innovation to accelerate cost reduction. The proposed development has potential to power 500,000 UK homes with clean, renewable low-cost electricity.
 - Socio-economic benefit (coordination objective): the offshore wind industry in the UK provides important employment opportunities and can boost the economy and provide new jobs and skills. Construction of the proposed development is estimated to peak at around 1,300 jobs, with 80 jobs locally and 140 across the UK during operation. The proposed

development has an estimated construction cost of £1.3 billion (2023 pricing), and £665 million of operational costs over its lifetime (35 years). It is predicted to contribute £259 million GVA to the UK economy (with £10 million GVA locally).

- C.6.5 In respect of LBBG, the applicant stated [\[REP5a-011\]](#) that the proposed development would have a minimal impact from collision risk of less than 1 bird annually (<1% increase in background mortality). In respect of RTD, the applicant [\[REP5a-046\]](#) stated that the proposed development would have a minimal impact through potential disturbance or displacement of up to 2 RTD annually within the 'original' (pre-2017) SPA boundary (0.01% increase in background mortality). The proposed development would contribute to reducing effects of climate change, which would have ecological benefits that outweigh these impacts and secure habitable environments over the longer term for a range of species within the UK NSN, including LBBG. The applicant stated that climate change is likely to be a main cause in declining seabird populations, for example through effects resulting in changes in prey availability, exposure to extreme weather conditions, and increased flood risk at nesting sites.
- C.6.6 The applicant's 'without prejudice' Derogation Case [\[REP5a-011\]](#), paragraph 118] stated that priority habitats or species are listed under the Habitats Directive and not the Birds Directive and are not relevant to the MBDE and the RAE SPA and Ramsar sites. It stated that the IROPI case therefore only needs to consider reasons of a socio-economic nature. The same statement is made [\[REP5a-046\]](#), paragraph 96] in respect of Liverpool Bay SPA.
- C.6.7 No comments relevant to the HRA have been received from any IP on the applicant's IROPI case.
- C.6.8 We note that the absence of priority habitats and species allows the consideration of benefits of a social and economic nature. As identified above, the case for development consent is addressed in chapter 4 of this report, which concludes that there is a compelling need for the proposed development. We note that the extent of harm to the relevant site features from the proposed development is relatively small for LBBG qualifying features of MBDE SPA and Ramsar site, and RAE SPA and Ramsar site. AEol arises from in-combination effects of collision risk contribution of the proposed development. For RTD of Liverpool Bay SPA, AEol arises from project-alone disturbance or displacement. We are content that the benefits of the proposed development, particularly from its contribution to the reduction in UK carbon emissions and maintaining energy security, are sufficient to allow the SoS to conclude that the proposed development is of imperative overriding public interest. Noting the 7 year implementation period in the dDCO, and the 5-year implementation period in our recommended DCO, our recommendation is that IROPI could, under either time frame, still be established if the proposed development is not operational by the Government's target year of 2030 for 50GW of offshore wind installed capacity. We also recognise that the proposed development is Critical National Priority Infrastructure and therefore we are of the opinion that IROPI for the proposed development could be established.

C.7 COMPENSATORY MEASURES (CM)

C.7.1 The applicant submitted a proposed package of CM on a ‘without prejudice’ basis for the following European sites and features:

- LBBG feature of the MBDE SPA and Ramsar site
- LBBG feature of the RAE SPA and Ramsar site
- RTD feature of the Liverpool Bay SPA

C.7.2 These measures were secured through schedule 7 of the dDCO [\[REP6-002\]](#), with Part 1 relating to LBBG and Part 2 relating to RTD. Schedule 7 also provided for CMs to be delivered through contributions to a strategic compensation fund (to be established by Defra or a Government body).

LBBG – MBDE SPA AND RAMSAR SITE AND RAE SPA AND RAMSAR SITE

C.7.3 As described in the RIES [\[PD-017\]](#), the applicant considered options for project-led CM for LBBG and narrowed down potential CM sites from an initial 7 long-listed sites to the following 2 options in its ‘without prejudice’ Derogation Case [\[REP5a-011\]](#):

- Banks Marsh (within the RAE SPA and Ramsar site) – suitable for protection from mammalian predation through predator fencing.
- Steep Holm Island (within the Severn Estuary SPA and Ramsar site) – suitable for habitat management to enable increased productivity.

C.7.4 The RSPB [\[REP3-114\]](#) requested clarification from the applicant about which option would be progressed. The applicant [\[REP4-058\]](#) set out that the proposed CMs at Steep Holm had progressed sufficiently to enable commencement of delivery in 2025. This is the preferred option, although the options of Banks Marsh and South Walney were retained should the option at Steep Holm not be progressed. This is discussed further in chapter 23 of this report in relation to article 18 and schedule 7.

C.7.5 The measures would be secured in a schedule to the dDCO and a detailed CIMP would be submitted to the SoS for approval following consultation with the ANCB. Schedule 7 of the dDCO [\[REP6-002\]](#) requires the detailed CIMP to be based on the oCIMP [\[REP5a-013\]](#) submitted with the DCO application.

C.7.6 NE stated [\[REP6-048\]](#) that was content with the level of detail in the oCIMP.

Overarching issue – compensation level

C.7.7 NE [\[RR-061\]](#), [\[REP1-098\]](#), [\[REP2-037\]](#), [\[REP3-093\]](#) initially advised that the compensation level proposed was not appropriate. It stated that the compensation ratio had not addressed relocation of adults from other nearby sites (including the cliffs at Steep Holm) and that consideration should be given to increased foraging distances resulting in more birds encountering OWFs and increasing collision risk.

C.7.8 As described in the RIES [\[PD-017\]](#), the applicant updated the compensation level information [\[REP3-008\]](#), annex 2A) to reflect the outcome of the revised

method for calculating impacts to LBBG requested by NE. It estimated that 26 new nest spaces would be required to offset the predicted mortality of 1.02 LBBG adults per year. It referred to Ross-Smith, Johnston and Ferns (2015) 'Hatching success in Lesser Black-backed Gulls – an island case study of the effects of egg and nest site quality', which recorded 348 nests in 0.77ha, equating to 452 nests per ha. It stated that mammalian predator fencing or scrub clearance of 0.06ha per year would be required to achieve the compensation target.

- C.7.9 We [\[PD-011\]](#), ExQ1HRA19] sought clarification from the applicant as to why the precautionary upper confidence level (UCL) (3.83 individuals) was not used. The applicant [\[REP3-068\]](#), ExQ1HRA19] stated that mean predicted mortality was used for comparable projects such as Norfolk Boreas and Vanguard. It considered that the compensation level was suitably precautionary accounting for inherent precaution in the predicted mortality, a 3:1 ratio of new adult birds in the population compared with predicted mortality and all proposed measures were expected to deliver over-compensation.
- C.7.10 NE [\[REP4-066\]](#) and the applicant [\[REP5-060\]](#) continued to discuss compensation levels. The applicant stated that the proposed project-led CM would overcompensate any predicted loss, and that the compensation level was generous, having increased from 18 to 26 nests calculated based on CIV. NE [\[REP5a-070\]](#) advised that the target for the CM should be set by reference to the CIV of 1.02 adults per annum (0.33 from MBDE and 0.69 from RAE). It calculated a target colony size of approximately 10 breeding pairs to compensate the predicted level of impact. However, it advised that the CM should be scaled using the UCL. As the preferred site, Steep Holm, was outside the NSN for LBBG it also advised the applicant to consider an additional multiplier to take account of philopatry. It stated that a 3:1 ratio would lead to a significant scaling up of the CM but that was justified in this case due to uncertainty around the level of impacts. After scaling on this basis, NE advised that 100 breeding pairs requiring 0.21ha of nesting habitat would be required.
- C.7.11 NE [\[REP5a-070\]](#) provided further comments on the LBBG compensation quantum. It set out that NE currently uses and endorses the use of the "Hornsea 3 Part 2 ('H3pt2') method to be the most ecologically complete to calculate the number of breeding pairs that might be required to generate sufficient recruits to compensate for a specified mortality impact".
- C.7.12 NE went on to state "Following testing of the H3pt2 method for guillemot, razorbill and lesser black-backed gull, it has become apparent that lower levels of natal dispersal, compounded by older recruitment ages and lower productivity can produce unrealistic and disproportionate requirements for scaling compensatory measures for other seabird species. Furthermore, it is not clear that some of the necessary demographic information is well evidenced, which can introduce significant uncertainty into any calculations reliant on those data".

- C.7.13 As a result of this, NE revised its position and instead recommended use of the Hornsea 4 method with modifications, the details of which are set out in its representation [\[REP5a-070\]](#).
- C.7.14 NE [\[REP5a-070\]](#) set out that in relation to the MBDE SPA and Ramsar site and RAE SPA and Ramsar site (having noted that CMs for both sites should be delivered together) that the following impacts were agreed in terms of impact and scaling of compensation quantum:

“The CIV [central impact value] is 1.02 adults from the two SPAs combined per annum (0.33 from MBDE and 0.69 from RAE), with a 95% [Upper Confidence Level] UCL value of 3.43 adults (1.11 from MBDE and 2.32 from RAE).”

- C.7.15 NE [\[REP5a-070\]](#) noted that the applicant’s ‘Without Prejudice Derogations Case’ [\[REP3-009\]](#) was based on the compensation quantum based on the CIV. NE stated that following its advice the applicant was unable to replicate the Hornsea 3 model. NE set out that the applicant instead proposed a multiplier of 25.6 based on the method’s previous outputs. This concluded 26 nest spaces (1.02 x 25.6) as a compensation target.
- C.7.16 NE aver that consideration of philopatry was required for CM at Steep Holm, one of the proposed sites for compensation located in the Bristol Channel, as it was outside the NSN for the species. NE went on to state that it was confident of the CM’s success and calculated that 10 breeding pairs would be required although it deemed that the CMs should be able to demonstrate that it could be scaled up if required. More specifically it stated *“We consider that the compensatory measure should be scaled using the UCL impact value, applying the H4 method with additional consideration of philopatry to derive the quantum, and then applying a 3:1 ratio to generate the number of pairs the measure should be able to accommodate. Finally likely nesting densities should be considered to define a minimum area of scrub clearance.”*
- C.7.17 NE deemed the application of a 3:1 ratio to be a significant scaling up and that this scaling up would result in an increased area where additional scrub clearance would be undertaken. This would not, in its view, affect the productivity of the colony but it would enable any uncertainty over impacts to be accounted for. The additional scaling up would lead to an area of scrub being cleared for 100 nesting pairs and a clearance of at least 0.21 hectares (ha) of scrub (approx. a third of a football pitch). It stated that scaling up at a single site was preferable over smaller areas at multiple sites.

- C.7.18 NE set out its calculations as follows:

Calculation 1- breeding pairs required to compensate the CIV

- CIV of 1.02 breeding recruits / (0.798 x 0.885 x 0.885 x 0.885 x 0.885) fledglings surviving to breeding age = 2.08 fledglings required
- To account for philopatry 2.08 / 0.470 = 4.43 fledglings required
- 4.43 / 0.45 average productivity = 9.85 = 10 pairs

Calculation 2 – total scale of measure (minimum area of scrub clearance)

- UCL value of 3.43 breeding recruits / $(0.798 \times 0.885 \times 0.885 \times 0.885 \times 0.885)$ fledglings surviving to breeding age = 7.01 fledglings required
- To account for philopatry $7.01 / 0.470 = 14.91$
- $14.91 / 0.45$ average productivity = 33.13 breeding pairs
- 3:1 ratio = $33.13 \times 3 = 99.4 = 100$ pairs
- Calculation of area required for 100 pairs / nesting density 0.0475 = $2105.26\text{m}^2 = 0.21\text{ha}$

- C.7.19 The applicant responded that it did not agree that both an UCL of 95 and a ratio of 3:1 (equivalent to 30 nests) should be applied. The applicant calculated this to provide 10 times the base requirement (calculation 2). The applicant concluded that calculation 1 was appropriate and that this aligned with the consented Norfolk Boreas and Vanguard DCO projects. The applicant noted that both calculations accounted for philopatry and was content with this.
- C.7.20 The applicant concluded that despite its views above, the area of proposed scrub clearance at Steep Holm was approximately 5 times more than that required to provide for 100 nests and therefore capable of delivering the compensation quantum but deemed this to be over provision and so should not be seen as a precedent for future projects as it has the potential to limit the availability of land.
- C.7.21 By the close of the examination, whilst the applicant and NE were not agreed on the method for calculating the compensation level (in terms of the target number of breeding pairs or nests), NE [\[REP6-051\]](#) RIES Q38 and [\[REP6-052\]](#) did agree that the CM proposed was sufficient to address the impacts on LBBG subject to confirmation that the proposed area over which the measure would be implemented to enclose at least 0.21ha, as advised in [\[REP5a-070\]](#). It advised that this could be delivered at Steep Holm or Banks Marsh.
- C.7.22 The oCIMP [\[REP5a-013\]](#) included a commitment to scrub clearance at Steep Holm of 1.08ha, which NE [\[REP6-048\]](#) confirmed was sufficient.
- C.7.23 We are content that the project-led CM committed to in the oCIMP of 1.08ha of scrub clearance is sufficient to achieve the compensation level required for the predicted harm to the LBBG feature of the MBDE SPA and Ramsar site, and the RAE SPA and Ramsar site, noting that this provision is well in excess of the compensation level advised by NE as ANCB of 100 breeding pairs requiring 0.21ha of nesting habitat.
- C.7.24 Annex 1 to this appendix provides a discussion on the quantum of compensation and the implications of applying philopatry in CM calculations. As that annex states, that discussion is, in our opinion, academic in relation to the consideration of the current application.

Steep Holm

- C.7.25 The applicant [REP5a-011] proposed vegetation and scrub management at Steep Holm, which it stated was likely to be a highly effective CM as scrub encroachment is a key factor limiting LBBG success at Steep Holm. Section 2.2 of annex 2A [REP5a-011] stated that Steep Holm may function as a separate meta-population from the northwest England gull colonies. NE [REP5a-070] stated *“We are confident that adequate scrub clearance on Steepholm, adjacent to an already densely populated area of the existing colony, is highly likely to result in an increase in the number of lesser black-backed gulls nesting at the site. Natal dispersal could feasibly and directly contribute to NSN resilience by supplying recruits (via natal dispersal) into the impacted (or other) SPA populations”*.
- C.7.26 As described in the RIES [PD-017], the applicant [REP1-093, sections 3.1.4 and 3.3] provided updates on this proposed CM during the examination in response to our questions and IP submissions.
- C.7.27 In terms of appropriateness and efficacy, NE [RR-061] [REP1-098] [REP3-093] was confident this CM would be effective and agreed with the applicant that scrub clearance and habitat management could address impacts by improving LBBG productivity. It confirmed that the site is in the Steep Holm Site of Special Scientific Interest (SSSI) and Severn Estuary SPA but neither of these designations had LBBG as a designated breeding feature. It advised that LBBG numbers on Steep Holm have fluctuated, and the proposed intervention has the potential to increase the population. It stated that although LBBG show high philopatry (primarily recruiting at the natal site) it was possible that individuals fledging from Steep Holm could recruit into other colonies including at SSSP SPA or Isles of Scilly SPA, thereby contributing to coherence of the NSN.
- C.7.28 Notwithstanding this, NE [RR-061] raised several comments on the proposed CM including on the need for drone surveys to monitor LBBG nesting in the cliffs and on the timing and duration of monitoring. NE [REP2-037, appendix B7] stated that opportunities for scrub clearance, and nest and productivity monitoring and colour ringing, should be maximised at an appropriate time of year to mitigate risks that essential elements could not be undertaken. It confirmed [REP3-092, ExQ1HRA23] that it would be best to avoid clearance between March and August, which is the typical breeding season of a range of small birds that may be nesting on the island.
- C.7.29 In response to the RSPB’s [RR-073] request for further information, the applicant [REP4-058] noted that there is no definitive information on breeding density of LBBG on Steep Holm. It used a precautionary density based on information of densities at Flat Holm, also in the Bristol Channel. It provided further information on scrub clearance to the CM steering group, to which the RSPB was invited.
- C.7.30 Section 4 of Annex 2A [REP1-014] indicated that discussions were on-going with the landowners. A letter of support from the landowners, Kenneth Allsop Memorial Trust (KAMT), was provided at appendix 3. In response to our

request for a progress update, the applicant [REP3-068, ExQ1HRA24] stated that it met with KAMT on 20 January 2025 to discuss a commercial agreement.

- C.7.31 The applicant [REP1-093, paragraph 71] stated that SSSI assent would be required from NE; this had been obtained for the trial clearance works and the applicant stated that NE confirmed that consent for the full works would not present a difficulty. It is stated that no other consents would be required. NE [RR-061] advised that the proposed works should be able to achieve SSSI consent (or assent) as impacts to the vascular plant assemblage feature of the SSSI could be avoided. It confirmed in [REP2-037, appendix B7] that it saw no issues with obtaining the necessary NE consent. In response to ExQ1 [PD-011], the applicant [REP3-068, ExQ1HTA21] stated that NE and KAMT had confirmed in discussions, that there were no concerns about effects on the Steep Holm SSSI and Severn Estuary SPA from implementing the CMs.
- C.7.32 We [PD-011, ExQ1HRA21] sought clarification from the applicant that the CMs proposed at Steep Holm would not give rise to effect on other designated species or features of the Severn Estuary SPA and Steep Holm SSSI. The applicant responded [REP3-068] to confirm that NE and KAMT have confirmed that they have no concerns in relation to any impacts on other sites and species at the Steep Holm SSSI. NE have confirmed no concerns in relation to the Severn Estuary SPA. Furthermore, the applicant has not identified any pathways for an impact to occur.
- C.7.33 By the close of examination, NE [REP5-083] [REP5-081, ExQ2HRA1] had confidence that it was possible to deliver the measures at an appropriate level at Steep Holm and therefore that remaining matters would be resolved once the required scale of the compensation is agreed and secured. See DCO chapter 25 discussion regarding article 18 and schedule 7.

Banks Marsh

- C.7.34 NE [RR-061, REP1-098, REP3-093], Annex B1 advised that it was moderately confident in this compensatory measure. It agreed [RR-061] that Banks Marsh was a feasible compensatory measure option that, if successful, could deliver more than the currently proposed compensation level thereby addressing any accrued mortality debt early in the operational lifespan of the proposed development. The RSPB [REP3-114] stated that it is content that the proposed predator fence would meet the ecological objectives based on experience elsewhere.
- C.7.35 NE [RR-061] originally advised that as no landowner agreement had been secured, it did not have sufficient certainty that the measure was deliverable. The applicant [PD1-011] stated that no landowner requirements beyond NE and the RSPB and potentially the Environment Agency (EA) depending on final fence alignment, were required. [REP1-093, sections 3.1.3 and 3.2] stated that the option comprised a wider mega fence scheme being promoted by the RSPB and NE, to which the proposed development could contribute. In addition, the necessary consents and permits are in

preparation and would be obtained by the RSPB and NE, and permission had been obtained from the relevant landowners. Appendix A to [\[REP1-014\]](#) comprises a letter from NE confirming its approval. Paragraph 28 confirmed that the EA had provided email permission to NE for works covering its interests, although evidence of this was not submitted. NE [\[REP2-037\]](#) annex B7, acknowledged the confirmed landowner permission.

- C.7.36 The applicant [\[REP1-093\]](#) stated that the fence would be built to the RSPB specification and planning permission is not required as it would benefit from permitted development rights under the Town and Country Planning (General Permitted Development) (England) Order 2015. A flood risk activity permit would be needed due to it being within 16m of an engineered sea defence, as would consent from NE where works are proposed within a SSSI. NE [\[REP2-037\]](#), appendix B1] stated that it understood for most of the route the megafence would replace existing enclosure infrastructure and that no issues had been raised during information consultation with local EA staff.
- C.7.37 We [\[PD-011\]](#) requested the applicant to provide any evidence of discussions held with the relevant local planning authorities regarding any planning consents that may be required. The applicant [\[REP3-068\]](#), ExQ1 HRA26] stated that discussions had yet to take place with Sefton and West Lancashire Councils but as the proposed megafence would replace an existing fence line, NE considered it would be permitted development. The applicant stated that this would be confirmed through pre-planning advice.
- C.7.38 [\[REP1-093\]](#), paragraph 53] stated that an HRA of this option was carried out by NE and that no detrimental impacts or pathways for impacts were identified. The applicant submitted a copy of the HRA [\[REP3-068\]](#), appendix C] in response to our request [\[PD-011\]](#), ExQ1 HRA25]. The HRA concluded there would be no LSE arising from the installation of predator fencing.
- C.7.39 In response to our question [\[PD-011\]](#), ExQ1HRA14], the applicant provided [\[REP3-008\]](#), annex 2B, table 6.1] an assessment of the potential impacts of the CM on other protected features and environmental receptors of the compensation site. It concluded that there would no LSE arising from installation of predator fencing.
- C.7.40 Section 7 of annex 2B [\[REP1-014\]](#) stated that the objective would be to implement predator fencing (if selected) before the breeding season commences 4 years prior to start of operation, as 4 years is the age at which LBBG typically start breeding. If operation commenced before new adult birds are produced at the compensation colony, a mortality debt would arise, which would need to be paid back during future operational years.
- C.7.41 NE [\[REP2-037\]](#), appendix B7] provided detailed comments on [\[REP1-093\]](#), noting that more information may be contained in a feasibility study by the RSPB, which has not been submitted to the examination. NE raised the following:

- It is not clear how much of the approximately 1,750 hectares available is suitable habitat for nesting gulls, or what amount would be assigned if required as CMs for the proposed development.
- It noted that some part of the area is not protected by a new embankment and is liable to flooding at certain times, such as high spring tides, which has previously contributed in reduced LBBG breeding success. It is not able to rule out climate-related higher tides, amongst other factors, as contributory to a recent colony collapse.
- It requested an indicative location and figure for the extent of land suitable for nesting LBBG, inclusive of the area to be monitored for the purposes of satisfying the CM (if required).

- C.7.42 In doing so, it recommended consideration of climate change to flood risk over construction and operation.
- C.7.43 The applicant [[REP3-069](#)] confirmed that the feasibility study was only available in draft form. It stated that NE's comments would be captured in the final report but did not substantively respond to them.
- C.7.44 The applicant [[REP3-008](#)] in annex 2A stated that mammalian predator fencing or scrub clearance of 0.06 hectares per year would be required to achieve the compensation target of 26 nests, for which there was abundant capacity through either Banks Marsh or Steep Holm. The RSPB [[REP3-114](#)] requested clarification from the applicant as to whether it would be in a position to advise on the option being progressed. The applicant [[REP4-058](#)] set out that the proposed CMs at Steep Holm had progressed to enable commencement of delivery in 2025. This is the preferred option with the options of Banks Marsh and South Walney retained should options at Steep Holm not be progressed.
- C.7.45 By the close of examination, NE [[REP5-083](#)] [[REP5-081](#), ExQ2HRA1] had confidence that it was possible to deliver the measures at an appropriate level at Banks Marsh, should the preferred option of Steep Holm not be progressed and therefore that remaining matters would be resolved once the required scale of the compensation is agreed and secured. See DCO chapter 25 discussion regarding article 18 and schedule 7.

ExA's Conclusions on project specific CMs for LBBG

- C.7.46 Taking all of the above considerations into account, we consider that there is sufficient information for the SoS to establish that appropriate CM can be implemented, in order to fulfil their duty under the requirements of The Habitats Regulations. We conclude that the overall package of proposed CMs is feasible, appropriate and would ultimately ensure the overall coherence of the UK NSN.

Strategic compensation for LBBG

- C.7.47 The applicant considered strategic CM for LBBG in Annex 1A of its 'without prejudice' Derogation Case (section 5.4 [[REP5a-011](#)]), noting that predator reduction and habitat restoration and creation are measures identified by the Offshore Wind Industry Council (OWIC) that could be available through the

Marine Recovery Fund (MRF). It also considered strategic CM for RTD in its Without Prejudice Derogation Case – RTD at Liverpool Bay [REP5a-046, section 4.8), noting that these were being considered by Defra but timescales were uncertain.

- C.7.48 As reported in the RIES [PD-017], during the examination a Written Ministerial Statement (WMS) was published, which set out the Government's commitments to implementing an offshore wind environmental package including launch of the MRF in late 2025 to provide an optional mechanism for developers to fund strategic CM. DESNZ published supporting guidance, explaining how developers could refer to strategic CMs in DCO applications in advance of the MRF becoming operational. Both the WMS and DESNZ guidance stated that projects likely to use the measure included those that had received a seabed lease from TCE under Leasing Rounds 3 or 4, and the 2017 extensions round, which would include the proposed development. The DESNZ guidance indicates that the Government's target date for MRF to be established is late 2025.
- C.7.49 This matter was discussed with the applicant at ISH2. The applicant confirmed its position on the WMS in its response to actions arising [REP4-061]. It stated new designations or extensions for benthic compensation and artificial nest structure (ANS) for kittiwake are not relevant as AEoI on these features was excluded. It identified some connection to predator reduction in respect of the without prejudice CMs being proposed for LBBG and RTD. It confirmed that the project-led measures it had developed allowed an option for strategic compensation to be used but stated that strategic compensation only could not be relied upon at this time.
- C.7.50 We also [PD-013] sought comments from NE and the MMO. NE [REP4-065] stated that the DESNZ interim guidance provides advice to developers developing their own avian compensation packages on how to ensure consent documents include the option to switch to the MRF. It advised that applicants wishing to use predator reduction as a CM ahead of the MRF would need to deliver the measure themselves, but they may wish to provide for an MRF contribution in substitution, where this became available. It confirmed that no measures for RTD compensation currently form part of the library, but considered a provision for an MRF contribution for this species would be prudent, alongside project-specific measures proposed. The MMO [REP4-064] deferred to NE but noted that the applicant had provided a without prejudice CMs case in line with guidance.
- C.7.51 As noted above, schedule 7 of the dDCO [REP6-002] includes a provision for strategic CM (as an alternative to project-led CM) for both LBBG and RTD. NE did not comment on this wording during the examination.
- C.7.52 We recognise that, following the advice of NE as ANCB, the applicant has included provision in schedule 7 of the dDCO [REP6-002] for use of strategic CM as an alternative to project-led CM. We are satisfied that schedule 7 is suitably drafted to secure those commitments and the further work required to agree the detail of measures both for compensation and adaptive management. As the applicant acknowledges, strategic CM cannot currently

be relied on to conclude that the predicted AEoI of the MBDE SPA and Ramsar site and RAE SPA and Ramsar site cannot be effectively compensated, as the fund is still to be established. However, if the SoS is able to secure and be satisfied that this work could be in place so that the proposed development could utilise it within the timeframe set by R1 in the DCO to compensate for the predicted AEoI, then the SoS may be able to conclude that the strategic CM as proposed could ensure the overall coherence of the UK NSN. As such, we have retained the strategic CM option within schedule 7 of the recommended DCO (rDCO).

RTD – LIVERPOOL BAY SPA

- C.7.53 As set out above, in our view if a 7.5km buffer from the ‘original’ boundary of the Liverpool Bay SPA were to be included then there would be no need to provide compensation for the effects on the RTD qualifying feature. However, should the SoS conclude differently on this point, the following is given should the SoS conclude that the proposed development would require the provision of appropriate compensation.
- C.7.54 As described in the RIES [\[PD-017\]](#), the applicant considered options for project-led CM for RTD in its HRA Without Prejudice Derogation Case [\[REP5a-011\]](#). It was agreed by the applicant [\[REP5a-046\]](#) and NE [\[RR-061\]](#) that the delivery of CMs within the Liverpool Bay SPA would be significantly difficult.
- C.7.55 Table 2.1 of appendix 1 [\[REP5a-046\]](#) summarised the applicant’s screening of potential CM. The applicant concluded that the following measures should be taken forward for further consideration:
- nesting rafts and/ or habitat management (project-led)
 - contribution to a strategic fund (strategic)

Nesting rafts and/ or habitat management (project-led)

- C.7.56 The applicant [\[REP5a-046\]](#) stated that delivery of a project-led CM would not be feasible at Liverpool Bay SPA. It reviewed alternative locations in the mainland, north and west coasts of Scotland, noting that there are no studies on the breeding origin of RTD present in the Irish Sea but consultation with an expert indicated that birds in the Liverpool Bay SPA most likely breed on the west coast of Scotland.
- C.7.57 Section 3.1 of appendix 1 [\[REP5a-046\]](#) presented ecological evidence about constraints to RTD productivity. It referred to studies in North America, Finland and Scotland that concluded artificial rafting nests can increase productivity for 3 species of diver, including RTD. It stated that studies of rafting nests demonstrated increased productivity, which could be attributed to elimination of nest flooding, reduction in human disturbance and predation. It stated that restoration and management of “peatland lochans” in Shetland is being undertaken by Viking Wind Farm to benefit RTD; this would create smaller waterbodies, which are preferred by the species.

- C.7.58 Section 3.2 of appendix 1 [\[REP5a-046\]](#) set out the applicant's approach to long and short-listing of potential compensation sites for project-led measures, with results presented in appendix A1. In relation to the long list of alternative solutions, these were presented as set out above for LBBG CMs and are not repeated here (see paragraphs C.7.3 and C.7.4 above).
- C.7.59 Appendix B1 included location plans (provided on a confidential basis) of the long and short-listed sites.
- C.7.60 Section 4 of appendix 1 [\[REP5a-046\]](#) provided more detail of raft design and locations. Its focus was on potentially suitable lochs close to the northern and western Scottish mainland coast and the Hebrides. Table 4.1 summarised the location and number of suitable lochs for which in-principle landowner agreement had been discussed. Letters of support for sites in the Inner Hebrides and Highlands are provided in appendix 2. The applicant stated site visits would be undertaken in spring or summer 2025 to confirm loch suitability.
- C.7.61 The applicant proposed to provide 20 compensation lochs with nesting rafts and/ or habitat management and 20 control sites against which breeding success could be monitored. It stated that, assuming an increase in productivity of 0.4 young per year for an occupied raft, with between 60% and 90% of rafts being occupied, 20 rafts would enable 5 to 7 additional birds to be fledged each year. Rafts would be installed pre-construction and RTD would be expected to start using them the following summer with fledglings in the first winter (12 months after installation).
- C.7.62 Section 4.5 of appendix 1 [\[REP5a-046\]](#) stated that a RTD CM steering group (CSG) would be established. A detailed CIMP, in line with the oCIMP, [\[REP5a-048\]](#) would be secured through the dDCO via an additional compensation schedule for the Liverpool Bay SPA. This is secured in the dDCO [\[REP6-002\]](#).
- C.7.63 Section 4.6 of appendix 1 [\[REP5a-046\]](#) stated that landowner permission would be sought through legal agreement, such as a lease, for the proposed development's lifetime. It considered that planning permission was not likely to be required for the rafts but noted that SSSI consent or assent might be required from NatureScot.
- C.7.64 Section 4.7 of appendix 1 [\[REP5a-046\]](#) described proposed monitoring and adaptive management measures.
- C.7.65 NE [\[REP4-066\]](#) noted that "We consider that in broad terms the measure is well evidenced and can reasonably be expected to deliver benefits for this species and, subject to the locations being selected, the National Site Network (NSN) for red-throated divers". It went on to note the importance of site selection and requested further information on this. It also requested that the applicant consider any unintended consequences, such as drawing divers out of SPAs into areas where they are not protected and predation risk, particularly regarding American mink in mainland locations. It also highlighted the difficulty in measuring the success of the proposed CMs. It

concluded that it was broadly content with the scale of the compensation subject to suitable locations being identified. NE queried whether CMs would be more effectively delivered in collaboration with the North Falls OWF, which is currently in examination.

- C.7.66 In relation to scaling the compensation and agreeing the quantum required, NE advised [\[RR-061\]](#) that *“design and delivery of derogations for red-throated diver to be extremely challenging, especially when considering the nature of the impacts (i.e. distribution, not mortality)”*. NE [\[REP5-082\]](#) stated that “Natural England agree with the Applicant that there is no measurable direct link between the potential effect (habitat loss/degradation) and the proposed scale of compensation (increased productivity), and there is therefore no robust way to scale the level of compensation to be delivered.” Commenting on the applicant’s suggested provision of 20 rafts to enable between 5 and 7 additional birds to be fledged each year, NE [\[REP5-082\]](#) stated that success of a CM is generally measured by the number of breeding adults, and that survival rates of RTD are not well evidenced but thought to be relatively low. On that basis, NE advised that the CM would be expected to deliver approximately 2 additional adult RTD per year but agreed that scale of compensation was broadly appropriate.
- C.7.67 In response to NE’s comments regarding scale, the applicant [\[REP5-054\]](#) stated that it “has identified sufficient lochs within those landholdings to meet the proposed scale of compensation”.
- C.7.68 NE [\[REP4-066\]](#) *“highlight that it is not clear that direct connectivity with the impacted site would necessarily be advantageous in this case, as delivering additional birds into a site adversely affected by disturbance impacts may be less beneficial to the UK NSN as a whole than if they were to winter in a less impacted site”*. It suggested consultation with NatureScot and other local stakeholders in relation to adaptive management.
- C.7.69 The applicant provided an update on CMs [\[REP5-054\]](#), including landowner negotiations and changes following feedback from NE. The applicant further committed to provision of rafts on known breeding lochs as well as lochs where breeding had not previously been confirmed. It also committed to considering habitat enhancement measures targeted in areas to support breeding RTD. This is a measure, recognised by the applicant, as having an unknown success rate, however it deemed the measure would complement and provide resilience to the primary raft CM. It went on to state that monitoring measures could be included with agreement with local stakeholders. Further information was also provided on potential adaptive management measures. [\[REP5a-046\]](#), paragraph 17] recognised a potential role for strategic CMs in the form of peatland restoration schemes and the applicant stated it was seeking collaboration with other developers, in this respect.
- C.7.70 NE [\[REP5-082\]](#) provided its view on the confidence level in the CMs proposed by the applicant. it stated:

“We recognise that, given the location of this measure in Scotland, the targeting of breeding rather than non-breeding RTD and the fact that the breeding origins of the divers that overwinter in Liverpool Bay are uncertain, there would not necessarily be any direct benefit to the impacted population. In any event, the measure would not address the disturbance and displacement (effectively felt as habitat loss) impacts of the project on non-breeding RTD. Nevertheless, there would be connectivity with the National Site Network (NSN) through potential recruitment into Scottish SPAs designated for breeding RTD, and possibly also to the Scottish and English SPAs designated for non-breeding red-throated diver”.

- C.7.71 NE [\[REP5-082\]](#) stated that nesting rafts have a long history of being successful and that they are technically feasible. NE deemed that the measure would be technically feasible provided that baseline data demonstrated a need at the site. NE also noted the importance of managing water levels in relation to the success of the measure. Based on previous studies, NE was satisfied that the CM could be delivered before the point of impact, stating that there is evidence that rafts would be used within the first year or shortly after.
- C.7.72 NE [\[REP5-082\]](#) highlighted the importance of the location of the rafts, and concluded the measure would be suitable as a primary measure but considered it best if delivered alongside habitat management (where appropriate).
- C.7.73 By the close of examination, NE [\[REP5-082\]](#) provided commentary on the proposed without prejudice CMs. In summary it:
- agreed that nesting rafts and habitat management measures would theoretically deliver compensation
 - agreed that nesting rafts and habitat management are technically feasible
 - agreed that there is no direct measurable link between the effect (habitat loss/ degradation) and the proposed scale of the compensation (increased productivity)
 - broadly agreed with the scale of the compensation subject to suitable locations being secured
 - agreed that the compensation could be delivered before the effect occurs
 - recognised that the applicant is seeking to avoid any overlap with measures proposed for the North Falls OWF
 - requested further information on the selected sites and the rationale for selection
 - broadly agreed with the design and monitoring of the rafts but requires further discussion
- C.7.74 NatureScot [\[REP5- 086\]](#) did not provide comment at D5 but noted it was due to meet the applicant on 18 March 2025 to discuss the CMs. No further comments were received from NatureScot.
- C.7.75 NE [\[REP6-051\]](#) commented that the applicant's revised oCIMP for RTD, submitted at D5a [\[REP5a-048\]](#) required further development of the measures

in relation to specific locations and interventions to ensure that the measures could be secured. NE's final Risks and Issues Log [\[REP6-052\]](#) also noted that the availability of strategic compensation options was limited for RTD; however, NE was keen to continue progressing this.

ExA's Conclusions on project specific CMs for RTD

- C.7.76 Taking all of the above considerations into account, we consider that there is sufficient information, if necessary, for the SoS to establish that appropriate compensatory measures can be implemented, in order to fulfil their duty under the requirements of The Habitats Regulations. We conclude that the overall package of proposed CMs is feasible, appropriate and would ultimately ensure the overall coherence of the UK NSN.

Strategic compensation for RTD

- C.7.77 The applicant [\[REP5a-046\]](#) acknowledged that DEFRA was considering strategic measures for RTD, this would be through contribution to a strategic fund, however timescales were uncertain. Therefore this was not a matter before the examination. Noting this, the applicant concluded that the project specific measures were reliable and securable. Should another strategic measure become available, the applicant has stated that it would consider this. It also committed to considering secondary measures such as peatland restoration schemes, which would benefit the RTD.

C.8 HRA CONCLUSIONS

- C.8.1 The proposed development is not directly connected with, or necessary to, the management of a European site, and therefore the implications of the project with respect to adverse effects on potentially affected sites must be assessed by the SoS.
- C.8.2 86 European sites and their qualifying features were considered in the applicant's assessment of LSE, as listed in the applicant's HRA Screening Report and Annex I of the RIES. LSE were identified for a several of these sites, listed in table 2.3 of the RIES both from the proposed development alone or in-combination with other plans or projects.
- C.8.3 The methodology and outcomes of the applicant's screening for LSE on European sites was subject to discussion and scrutiny; however, the sites and features for which LSE were identified were not disputed by any IP. We are satisfied that the correct European sites and qualifying features have been identified for the purposes of assessment, and that all potential impacts which could give rise to significant effects have been identified.
- C.8.4 At the close of the examination, the applicant's conclusions were not disputed by any IP in relation to the Annex I benthic habitat and Annex II migratory fish or marine mammal sites and features listed in Table HRA 3.
- C.8.5 Our findings are that, subject to the mitigation measures to be secured in the rDCO, AEoI from the proposed development when considered alone or in-combination with other plans or projects can be excluded for the European

sites listed in table 2.3 of the RIES, aside from MBDE SPA and Ramsar site, and RAE SPA and Ramsar site, for all the impact-effect pathways assessed. We also note potential for the exploration of further mitigation (in line with the application of the mitigation hierarchy) to enable AEoI to be ruled out at Liverpool Bay SPA for the RTD qualifying feature through the application of no-development buffer zones from the SPA.

- C.8.6 As noted above, our findings are that AEoI cannot be excluded on the LBBG qualifying feature of MBDE SPA and Ramsar site and RAE SPA and Ramsar site from the collision risk LSE pathway from the proposed development in-combination.
- C.8.7 The applicant has submitted a 'without prejudice' derogation case for the LBBG qualifying feature, which includes an assessment of alternative solutions, a case for IROPI, and proposed CMs.
- C.8.8 The subject of alternative solutions, IROPI, and CMs were given substantial consideration during examination for LBBG. Given the evidence available, it is our opinion that there are no alternative solutions that would result in a lesser adverse effect to LBBG and that IROPI for the proposed development could be established. The findings of the examination are that the CM package as proposed is feasible and appropriate and is adequately secured in the rDCO. Further comments in relation to the quantum are detailed in the annex to this appendix.
- C.8.9 In relation to RTD, we have identified the potential for further mitigation through the use of a 7.5km buffer from the 'original' boundary of the Liverpool Bay SPA and in chapter 25 has discussed this further in terms of potential implementation options. This matter, due to timing of representations, was not able to be fully explored before the close of examination. Having noted this, we also acknowledged and examined the 'without prejudice' CMs for the RTD qualifying feature. We have concluded that should the SoS determine that AEoI cannot be excluded, and that no feasible alternative solution exists that would represent a lesser adverse effect to RTD than the proposed development, the ExA recommends based on the evidence available that IROPI for the proposed development could be established and that the CM package as proposed is feasible and appropriate and adequately secured in the rDCO.
- C.8.10 Table HRA Annex 2 1 in Annex 2 to this appendix provides the above information in tabular form.
- C.8.11 We consider that there is sufficient information before the SoS to enable them to undertake an appropriate assessment and to apply the derogation tests of The Habitats Regulations of alternative solutions, IROPI, and CMs in order to fulfil their duty under the requirements of The Habitats Regulations.

ANNEX 1: COMPENSATION PROVISION IN RESPECT OF LESSER BLACK-BACKED GULL

C.A.1.1. INTRODUCTION

- C.A.1.1.1. As set out in Appendix C to this report, should the Secretary of State (SoS) conclude, following an appropriate assessment, that the proposed development would have an adverse effect on integrity (AEol) of the lesser black-backed gull (LBBG) feature of Morecambe Bay and Duddon Estuary (MBDE) Special Protection Area (SPA) and Ramsar site and/ or the same feature of the Ribble and Alt Estuary (RAE) SPA and Ramsar sites, that there are no alternative solutions and that the project must be carried out for imperative reasons of overriding public interest (IRoPI), it will be necessary to secure that any necessary compensatory measures are taken to ensure that the overall coherence of the National Site Network is protected.
- C.A.1.1.2. The applicant has provided, on a 'without prejudice' basis to its fundamental case that such effects would not occur, proposals for compensation. These would be secured in article 18 and schedule 7 of the draft development consent order (dDCO) [[REP6-002](#)].
- C.A.1.1.3. These provide for either project specific compensation measures or the making of a contribution towards a strategic compensation fund. For the reasons that we have set out in chapter 25 of this report, we consider this should be on a hierarchical basis, that is project specific first, and only if that is not possible then should the strategic compensation fund be utilised.
- C.A.1.1.4. This annex deals with the proposed project-alone compensation measures. Under the applicant's proposals there are two options for this. Firstly, the applicant's preferred option, is a proposal for scrub clearance at Steep Holm in the Bristol Channel, and secondly is for predator exclusion measures at Banks Marsh and South Walney. This annex again limits itself to the first of these two options.

C.A.1.2. THE APPLICANT'S PROPOSAL

- C.A.1.2.1. The applicant's detailed proposals are set out in its 'Outline Compensation Implementation and Monitoring Plan' [[REP5a-013](#)]. In simple terms, the compensation would involve the clearance of approximately 1.08 hectares (ha) of scrub to create new LBBG nesting habitat.
- C.A.1.2.2. In [[REP5a-013](#), paragraph 15] the applicant estimates that 26 nests would be required to compensate for the predicted mortality as a result of the operation of the proposed development. In its derogation case [[REP5a-011](#), Annex 2A] the applicant cites academic evidence to show that LBBG nest at 452 nests/ha. At a density of 452 nests/ha, 26 nests would be equivalent to an area of 0.06ha (600 square metres (m²)).
- C.A.1.2.3. At the time of submitting its derogation case, the applicant was still waiting for Natural England's (NE) position as to what it believed should be the compensation quantum and the calculation to derive that. Notwithstanding

this, the applicant believed that the area of scrub which would be cleared would be more than that required to compensate for the predicted mortality occasioned by the proposed development.

C.A.1.3. NATURAL ENGLAND'S CALCULATION

C.A.1.3.1. NE submitted its 'Comments on Lesser Black Backed Gull Compensation Quantum' at the same deadline, D5a [\[REP5a-070\]](#). This details the reasoning for its calculation that 100 nests would be required to provide the necessary compensation. The final calculation is as follows:

Calculation 1- breeding pairs required to compensate the CIV

- CIV of 1.02 breeding recruits / $(0.798 \times 0.885 \times 0.885 \times 0.885 \times 0.885)$ fledglings surviving to breeding age = 2.08 fledglings required
- To account for philopatry $2.08 / 0.470 = 4.43$ fledglings required
- $4.43 / 0.45$ (average productivity) = 9.85 = 10 pairs

Calculation 2 – total scale of measure (minimum area of scrub clearance)

- UCL value of 3.43 breeding recruits / $(0.798 \times 0.885 \times 0.885 \times 0.885 \times 0.885)$ fledglings surviving to breeding age = 7.01 fledglings required
- To account for philopatry $7.01 / 0.470 = 14.91$
- $14.91 / 0.45$ average productivity = 33.13 breeding pairs
- 3:1 ratio = $33.13 \times 3 = 99.4 = 100$ pairs
- Calculation of area required for 100 pairs / nesting density $0.0475 = 2105.26\text{m}^2 = 0.21\text{ha}$

List of terms used:

- CIV – mean or central impact value
- philopatry - the tendency of an organism to stay in or habitually return to a particular area
- UCL – 95% upper confidence level

C.A.1.3.2. NE considered it is important that the compensatory measures should be able to demonstrate that, they could compensate for the UCL value should the impacts of the project be greater than the CIV, the measure is scaled using a ratio to increase confidence that sufficient benefits will still arise, should the measure underperform, and the measure takes account of philopatry, as only dispersing birds are likely to significantly contribute to National Site Network (NSN) coherence (by recruiting into the site network) and thus compensate for the losses at impacted SPAs.

C.A.1.3.3. The calculations by NE [\[REP5a-070\]](#) were followed by a table setting out 'Model parameters for calculations, including demographic rates'. However, there was no item in this table referring to philopatry, rather there was a row with 'natal dispersal 0.470' based on an academic reference. Furthermore, this was the first reference to philopatry or natal dispersal in the examination.

C.A.1.3.4. In its response to the original calculation at D6 the applicant stated that it *"is satisfied that the method proposed by Natural England is appropriate."*

However, we do not agree that both the upper 95% Confidence Limit (CL) and a 3:1 compensation ratio should be applied when calculating the final compensation value. In this case, this would (by NE's calculation) require 10 times the base requirement. We consider that this would over-compensate for the impacts, and that use of the mean ... (CIV) value plus a 3:1 ratio (equivalent to 30 nests) is appropriate".

C.A.1.3.5. We asked NE in a Rule 17 letter [PD-020] to justify the use of philopatry, setting out how it had been derived particularly in relation to compensation across the NSN.

C.A.1.3.6. NE's response [REP6-049] was that *"it is important to account for philopatry in the calculation because Steep Holm is outside of the NSN of sites classified for lesser black-backed gull. This means that philopatric birds that return to Steep Holm will not be within the NSN and thus cannot be considered as contributing to the compensation quantum delivered"*.

C.A.1.3.7. In relation to the numerator, NE stated [REP6-049, R17.2.6]:

"The numerator for the philopatry step of the calculation is the number of fledglings required based upon the total impact value for both SPAs and modified by the survival rate each year until breeding age. The denominator is the natal dispersal rate for LBBG given in Horsewill and Robinson (2015): this is a representation of the proportion of fledglings that would not return to their natal colony (Steep Holm in this case) and could therefore contribute to the compensation quantum required. The philopatry rate is the inverse of the natal dispersal rate." (our underlining).

C.A.1.3.8. Due to the late juncture in the examination the applicant was not able to respond to this submission.

C.A.1.4. DISCUSSION AS TO QUANTUM REQUIRED

C.A.1.4.1. The first and fundamental point we wish to make is that all parties agree that were Steep Holm to be used for compensation then the area of scrub proposed to be cleared would more than provide sufficient habitat for the effects of the proposed development. We agree with this. This means that the following discussion is academic to the consideration of the current application.

C.A.1.4.2. However, had we needed to conclude further on these matters, we feel that there are a number of issues on which we would have needed more information. We are highlighting these only so that the SoS is aware that we are of the view that these matters should not be considered closed should others wish to put forward the use of Steep Holm for compensation measures or use this compensation proposal in some other way as a precedent.

C.A.1.4.3. These can be dealt with under the following headings:

- whether philopatry should be included within the calculation
- the actual calculation based on natal dispersal rate

Philopatry

- C.A.1.4.4. As set out above, philopatry is the tendency of an organism to stay in or habitually return to a particular area. However, this leads to a fundamental discussion about the NSN. The NSN derives from the Birds Directive (Council Directive 2009/147/EC) which notwithstanding the United Kingdom's leaving of the European Union remains as assimilated law. The fundamental aim is the protection of wild birds.
- C.A.1.4.5. The NSN is a proxy to achieving that overall aim. In itself, the delivery of sites in favourable condition does not mean that birds will necessarily use those sites.
- C.A.1.4.6. Furthermore, it is agreed that recruitments between populations will occur, particularly those next door to one another. In addition, there will be occasions, such as in the incident case, where one site does not form part of the NSN. However, there will be an enhancement as to the number of wild birds overall through the compensation measures.
- C.A.1.4.7. Government guidance published by Department for Environment, Food & Rural Affairs, NE, Welsh Government and Natural Resources Wales in [‘Habitats Regulations Assessment protecting a European site’](#) under the ‘derogations: allow exceptions’ heading states:
- “Compensatory measures can include creating or restoring the same or very similar habitat on areas of little or no conservation value:*
- *within the same site - if it exists*
 - *at a suitable location outside the site”.*
- C.A.1.4.8. Therefore, the use of philopatry may, in a particular case, represent additionality with other factors used in the calculation so that it would not be justified in determining the amount of compensation required.
- C.A.1.4.9. If philopatry were not justified, then it would affect NE's calculations as set out above. To negate the effects as a denominator, the figure should be 1.0 and the changes are set out in [blue](#).

Calculation 1- breeding pairs required to compensate the CIV

- CIV of 1.02 breeding recruits / $(0.798 \times 0.885 \times 0.885 \times 0.885 \times 0.885)$ fledglings surviving to breeding age = 2.08 fledglings required
- To account for philopatry $2.08 / 1.0 = 2.08$ fledglings required
- $2.08 / 0.45$ (average productivity) = $4.63 = 5$ pairs

Calculation 2 – total scale of measure (minimum area of scrub clearance)

- UCL value of 3.43 breeding recruits / $(0.798 \times 0.885 \times 0.885 \times 0.885 \times 0.885)$ fledglings surviving to breeding age = 7.01 fledglings required
- To account for philopatry $7.01 / 1.0 = 7.01$
- $7.01 / 0.45$ average productivity = 15.57 breeding pairs
- 3:1 ratio = $15.57 \times 3 = 46.71 = 47$ pairs

- Calculation of area required for 47 pairs / nesting density 0.0475 = $989.48\text{m}^2 = 0.098\text{ha}$

Natal Dispersal Rate

- C.A.1.4.10. In looking at NE's submissions, we believe that NE may have made an error in its calculation. As set out in the quote in paragraph C.A.1.3.7 the philopatry rate is the inverse of the natal dispersal rate, but NE appears to have used the natal dispersal rate in the calculation. Here the natal dispersal rate is 0.470, but the inverse will be 0.530. While this is not a large difference, 0.060, this would amend the calculation. Had we had the opportunity we would have reverted to NE on this point.
- C.A.1.4.11. Had the philopatry figure (0.530) been used rather than the natal dispersal rate, then the calculations set out above would change. The revised figures are given in red.

Calculation 1- breeding pairs required to compensate the CIV

- CIV of 1.02 breeding recruits / $(0.798 \times 0.885 \times 0.885 \times 0.885 \times 0.885)$ fledglings surviving to breeding age = 2.08 fledglings required
- To account for philopatry $2.08 / 0.530 = 3.92$ fledglings required
- $3.92 / 0.45$ (average productivity) = $8.72 = 9$ pairs

Calculation 2 – total scale of measure (minimum area of scrub clearance)

- UCL value of 3.43 breeding recruits / $(0.798 \times 0.885 \times 0.885 \times 0.885 \times 0.885)$ fledglings surviving to breeding age = 7.01 fledglings required
- To account for philopatry $7.01 / 0.530 = 13.23$
- $13.23 / 0.45$ average productivity = 29.39 breeding pairs
- 3:1 ratio = $29.39 \times 3 = 88.2 = 89$ pairs
- Calculation of area required for 89 pairs / nesting density 0.0475 = $1873.69\text{m}^2 = 0.19\text{ha}$

- C.A.1.4.12. Table HRA Annex 1 1 puts the results side by side from the three calculations set out in this annex:

Table HRA Annex 1 1: Comparison of calculations regarding philopatry

	NE calculation	Philopatry @ 0.53	No philopatry
Breeding pairs for CIV (rounded)	9.85 (10)	8.72 (9)	4.63 (5)
Total scale of measure, pairs (rounded)	99.4 (100)	88.2 (89)	46.71 (47)
Area of scrub clearance required	2,105.25m ²	1,873.69m ²	989.48m ²

(based on rounded figure)			

- C.A.1.4.13. Turning this around, given the compensation measure for scrub clearance of 1.08ha we set out below in Table HRA Annex 1 2, using each inherent calculation applied, what the remaining land and bird capacities would be based on the four scenarios considered.
- C.A.1.4.14. For completeness we have added two other columns based on potential applicant positions. Firstly, as referred to in paragraph C.A.1.2.2 where the applicant indicates that 600m² of scrub clearance, and secondly as referenced in paragraph C.A.1.3.4 where it accepts that compensation is necessary for 30 pairs of LBBG. We note that the applicant has used a nesting density of 452 nests/ha when NE has used one of 475 nests/ha. Again, we would have sought further information on this. We have used each party's own calculation figure, and for the 'no philopatry' have used the 475 nests/ha.

Table HRA Annex 1 2: Potential capacity of cleared area (1.08ha)

	NE calculation	Philopatry @ 0.53	No philopatry	Applicant calculation @600m²	Applicant calculation @ 30 pairs
Area of scrub clearance required	2,105.26m ²	1,873.69m ²	989.48m ²	600m ²	663.72m ²
Ratio of over-compensation based on area of 1.08ha	5.13	5.76	10.91	18.0	16.27
Additional land available	8,694.74m ²	8,926.31m ²	9,810.52m ²	10,200m ²	10,136.28m ²
“Additional” capacity (pairs of birds based on inherent calculation)	413	424	466	461	458

ANNEX 2: SUMMARY OF ExA's HABITATS REGULATIONS CONCLUSIONS

Table HRA Annex 2 1: Summary of ExA's Habitats Regulations conclusions

Site	Feature	Conservation objective	AEoI conclusion	Mitigation	Derogation Case	Compensatory Measures
MBDE SPA and Ramsar sites	LBBG	Restore	AEoI in-combination	No options available	Yes	Yes Applicant's preferred option – Steep Holm compensation With other options available if required
RAE SPA and Ramsar sites	LBBG	Maintain	AEoI in-combination	No options available	Yes	Yes Applicant's preferred option – Steep Holm compensation With other options available if required
Liverpool Bay SPA	RTD	Maintain/restore	AEoI alone	Increase distance of built development from Liverpool Bay SPA to 7.5km	Yes, in case SoS considers that mitigation based on buffer to SPA is inappropriate.	Yes, provision of RTD floating rafts with peatland restoration in Scotland to increase RTD population.

APPENDIX D: RECOMMENDED CHANGES TO PARTS 2 AND 3 OF SCHEDULE 4 OF DRAFT DEVELOPMENT CONSENT ORDER

D.1 INTRODUCTION

- D.1 This appendix sets out the Examining Authority's proposed changes to parts 2 and 3 of schedule 4 of the applicant's preferred development consent order [REP6-002]. The reasons for the proposed changes are set out in main report.
- D.2 Proposed additions are shown in red underlined text and deletions are shown in ~~striketrough blue text~~.
- D.3 A table showing all the changes is given at the end of the 'tracked change' version.

PART 2

For the protection of the licensee and duty holder of the Calder Field~~Harbour Energy~~

Application

1. For the protection of the licensee and the duty holder from time to time of the Calder Field; ~~which at the date stated in article 1 (citation and commencement) of this Order is Harbour Energy;~~ the provisions of this Part of this Schedule, unless otherwise agreed between the undertaker and the licensee or the duty holder as the case may be, shall have effect ~~until completion of all activities required under any statutory decommissioning plan required under the 1998 Act in relation to the Calder Field~~in accordance with paragraphs 3 to 6.

Interpretation

2. In this Part of this Schedule—

“1998 Act” means the Petroleum Act 1998(a);

“additional costs” means any costs incurred by the licensee in carrying out the licensee's works or the duty holder's operations, and relating to any of the following—

- (a) impaired helicopter access to the extent such helicopter operations can be reasonably demonstrated to have been necessary for the operation and maintenance or decommissioning of the Calder Field or the Calder Field Facilities;
- (b) only to the extent not included in the calculation of costs relating to sub-paragraph (a), any use of vessels or alternative arrangements implemented to mitigate the likely extent of such impaired helicopter access, ~~subject to such use of vessels or alternative arrangements being approved in advance by the undertaker;~~ or
- (c) impaired helicopter access to any drilling unit or rig being utilised for the purposes of operation, maintenance or decommissioning of the Calder Field or the Calder Field Facilities and any associated support vessels and service personnel resulting in such unit, rig, support vessel or service personnel being required for a longer period of time;

(a) 1998 c. 17.

but in each case only to the extent that:

- (i) such costs have been incurred by the licensee or the duty holder as a result of the authorised development;
- (ii) such costs have been reasonably and properly incurred by the licensee or the duty holder;
- (iii) the licensee or the duty holder provides reasonably documented evidence of such costs;
- (iv) the licensee, the duty holder and each relevant contractor, sub-contractor or agent have at all times used reasonable endeavours to minimise and mitigate such costs;
- ~~(v) such costs are not consequential loss; and~~
- ~~(vi) such costs have been incurred on or after cessation of production for the Calder Platform;~~

~~“authorised development” has the same meaning as in Schedule 1 of this Order and shall include any part of the said works;~~

“cable” means the power and telecommunications cables connecting the Calder Platform to CPC ~~shown purple and annotated as Calder to CPC on the Spirit and Harbour Protective Provisions Plan;~~

~~“Calder Field” means the Calder offshore gas field which underlies United Kingdom Continental Shelf block 110/7a;~~

~~“Calder Field Facilities” means the facilities and infrastructure pertaining to the Calder Field;~~

“Calder Platform” means the normally unattended, minimum facilities wellhead platform located in the United Kingdom Continental Shelf block 110/7a D;

“cessation of production” or “COP” means the date on which hydrocarbon production permanently ceases;

“coexistence agreement” means an agreement or agreements entered on reasonable terms between the undertaker and the licensee or the undertaker and the duty holder in respect of the authorised development and the licensee’s or the duty holder’s works to reconcile and protect the interests of the parties as are known at the time;

“consequential loss” means—

(a) any consequential or indirect loss under English law;

(b) the following irrespective of whether direct, indirect or consequential loss—

- (i) loss or damage arising out of any delay, postponement, interruption or loss of production of hydrocarbons, any inability to produce, process or deliver hydrocarbons or any loss of or anticipated loss of use, profit or revenue;
- (ii) loss or damage incurred or liquidated or pre-estimated damages of any kind whatsoever borne or payable under any contract for sale, exchange, transportation, processing, storage or other disposal of hydrocarbons;
- (iii) losses associated with business interruption including the costs of overheads incurred during business interruption;
- (iv) loss of bargain, contract, expectation or opportunity; or
- (v) any other loss or anticipated loss or damage whatsoever in the nature of or consequential upon the foregoing.

—howsoever caused or arising whether under contract, by virtue of any fiduciary duty, in tort or delict (including negligence), as a consequence of breach of any duty (statutory or otherwise) or under any other legal doctrine or principle whatsoever whether or not recoverable at common law or in equity and whether or not foreseeable at the date stated in article 1 (citation and commencement) of this Order;

~~“CPC” means the hydrocarbon production and processing facilities complex known generally as such or the Central Processing Complex located in the United Kingdom Continental Shelf block 110/2a, 110/3a and 110/8a;~~ “duty holder” means the duty holder for time to time of the Calder Platform, which at the date stated in article 1 (citation and commencement) of this order is Spirit Energy Production Limited;

“duty holder’s operations” means the operations and services provided by the duty holder to the licensee in accordance with and pursuant to an operating agreement between the duty holder and the licensee;

“Harbour Energy” means Chrysaor Resources (Irish Sea) Limited, a subsidiary of Harbour Energy PLC;

“impaired helicopter access” means delays that occur in the movement of necessary personnel or materials (or both) by helicopter to or from the Calder Field Facilities (or any drilling unit or rig which is supporting the licensee’s or duty holder’s works at the Calder Field Facilities);

“interim to enduring aviation buffer change date ~~for Calder~~” means the earlier of the date of cessation of production at the Calder Platform ~~on~~ 1 January 2029 or if the undertaker has not commenced development by 1 January 2029 six months after the undertaker has given notice to the Secretary of State, the duty holder and the licensee or its intention to commence development;

“licence” means the United Kingdom Petroleum Production Licence P099;

“licensee” means the licensees from time to time of the Calder Field, which at the date stated in article 1 (citation and commencement) of this Order is Harbour Energy;

“licensee’s works” means any exploration, appraisal, development, production, maintenance, interventions or decommissioning activity in accordance with and pursuant to the licence or any statutory decommissioning plan required under the 1998 Act in relation to the Calder Field Facilities;

“ministerial statement” means the written statement given by the Secretary of State for Energy and Climate Change to the UK Parliament regarding Crown Estate Leases for Offshore Renewables Projects on 12 July 2011, or any similar supplementary or replacement policy;

“offshore substation platform” or “OSP” means Work No. 2(a) from Part 1 of Schedule to the Order but excluding foundations;

“pipeline and cable proximity area” means the area five hundred meters (500m) either side and directly above the pipeline and cable, ~~shown coloured pink and annotated and shown as the pipeline and cable proximity area on the Spirit and Harbour Protective Provisions Plan;~~

“pipeline” means—

- (a) the 3” inch Rivers onshore terminal to Calder chemical pipeline with pipeline reference number PL1965; and
- (b) the 24 inch Calder to Rivers onshore terminal gas pipeline with pipeline reference number PL1966

~~shown green and annotated as the Calder to Rivers Onshore Terminal (PL1966) and Rivers Onshore Terminal to Calder (PL1965) on the Spirit and Harbour Protective Provisions Plan;~~ together with any associated umbilicals, plant and equipment serving those pipelines;

“relevant activities” means all development activity relating to the carrying on of the undertaker’s and licensee’s businesses within or adjacent to—

- (a) the pipeline and cable proximity area;
- (b) the WTG and OSP aviation enduring buffer zone;
- (c) the WTG and OSP marine buffer zone;
- (d) the WTG aviation interim buffer zone; or
- (e) the WTG marine corridor;

as the case may be, including (but not limited to) the preparation of development proposals, the submission of applications for statutory consents associated with those proposals and consultation in respect thereof, or the acquisition of or application for new oil or gas blocks;

~~“Spirit and Harbour Protective Provisions Plan” means the plan certified as the Spirit and Harbour Protective Provisions Plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;~~

“temporary surface infrastructure” means any fixed temporary infrastructure to be used in the construction, operation and maintenance, and decommissioning of the authorised development including, but not limited to, jack-up barges and buoys, but does not include temporary surface infrastructure in transit;

“wind turbine generator” or “WTG” means Work No. 1(a) from Part 1 of Schedule to the Order but excluding foundations;

“WTG and OSP aviation enduring buffer zone” means a circular area of one point ~~five~~nine nautical miles (1.~~5~~9 nm) measured from the nearest outer extremity edge of the Calder Platform to any tip from any wind turbine generator or to any OSP located within the Order limits and extending vertically from mean sea level, ~~shown edged blue and annotated and shown as the WTG and OSP aviation enduring buffer zone on the Spirit and Harbour Protective Provisions Plan;~~

“WTG and OSP marine buffer zone” means an area of one ~~point five~~point five nautical miles (~~1.5~~1.5 nm) measured from the outer extremity edge of the Calder Platform and extending vertically from mean sea level ~~shown edged in light green and annotated and shown as the WTG and OSP marine buffer zone on the Spirit and Harbour Protective Provisions Plan;~~

“WTG aviation corridor” means a two nautical mile (2 nm) wide corridor ~~by a distance of three point seven six nautical miles (3.76 nm) long~~ by a distance of three point seven six nautical miles (3.76 nm) long angled at 220 degrees from CPC ~~set one nautical mile (1 nm) each side of CPC~~ set one nautical mile (1 nm) each side of CPC ~~shown edged in orange and annotated and shown as the WTG aviation corridor on the Spirit and Harbour Protective Provisions Plan;~~

“WTG aviation interim buffer zone” means a circular area of three point seven six nautical miles (3.76 nm) measured from the nearest outer extremity edge of the Calder Platform to any tip from any wind turbine generator located within the Order limits and extending vertically from mean sea level, ~~shown edged light blue and annotated and shown as the WTG aviation interim buffer zone on the Spirit and Harbour Protective Provisions Plan;~~ and

“WTG marine corridor” means a one nautical mile (1 nm) wide corridor of clear sea space between the Calder Platform and CPC ~~set half a nautical mile (0.5 nm) around the outer extremity edge of each of the Calder Platform and CPC~~ set half a nautical mile (0.5 nm) around the outer extremity edge of each of the Calder Platform and CPC ~~shown edged in dark green and annotated and shown as the WTG marine corridor on the Spirit and Harbour Protective Provisions Plan.~~

Restriction on authorised development

3.—(1) No wind turbine generator, offshore substation platform or temporary surface infrastructure shall be erected in the pipeline and cable proximity area, the WTG and OSP marine buffer zone or the WTG marine corridor unless otherwise agreed between the licensee or the duty holder and the undertaker.

(2) In the case of temporary surface infrastructure the licensee or the duty holder may not unreasonably withhold consent where the undertaker has been reasonably requested to place temporary infrastructure in the pipeline and cable proximity area, the WTG and OSP marine buffer zone or the WTG marine corridor by a statutory consultee.

4.—(1) No wind turbine generator shall be erected in the WTG aviation interim buffer zone prior to the interim to enduring aviation buffer change date for Calder unless otherwise agreed between the licensee or the duty holder and the undertaker.

(2) No wind turbine generator or offshore substation platform shall be erected in the WTG and OSP aviation enduring buffer zone at any time unless otherwise agreed between the licensee or the duty holder and the undertaker.

5. No wind turbine generator shall be erected in the WTG aviation corridor unless otherwise agreed between the licensee or the duty holder and the undertaker.

6. The restrictions in paragraphs 3, 4 and 5 (in respect of the WTG aviation interim buffer zone, the WTG and OSP aviation enduring buffer zone, the WTG and OSP marine buffer zone, the WTG marine corridor and the WTG aviation corridor) shall cease to have effect if the Secretary of State, having consulted with the licensee, has confirmed in writing that the Calder Field Facilities have been decommissioned.

Coexistence agreement

7. Prior to the commencement of construction of the authorised development, the undertaker and the licensee and the undertaker and the duty holder shall use reasonable endeavours to enter into a coexistence agreement (which shall include provision for proximity agreements on standard UK oil and gas industry terms and arrangements for coordinating marine access and simultaneous operations).

Provision of information

8. Without prejudice to any other rights or obligations under this Part of this Schedule the licensee, the duty holder and the undertaker shall from time to time keep each other informed of relevant activities such that the licensee and the undertaker may seek to agree solutions to allow those activities to successfully co-exist as far as reasonably practicable until completion of activities required under any statutory decommissioning plan required under the 1998 Act in relation to the Calder Field Facilities.

Cooperation

9. The undertaker and the licensee must each act in good faith and use reasonable endeavours to cooperate with, and provide assistance to, each other as may be required to give effect to the provisions of this Schedule.

Compensation

10.—(1) The licensee or the duty holder shall, as soon as reasonably practicable after incurring any additional costs, serve the undertaker with an itemised invoice which details the amount payable to the licensee which compensates the licensee for incurring such additional costs.

(2) Subject to sub-paragraph (3), within 28 days of receipt of such an itemised invoice, the undertaker shall pay the licensee's costs or the duty holder's costs as the case may be detailed in such itemised invoice by electronic transfer in immediately available funds to the licensee or duty holder, to such account as is designated by the licensee or duty holder, quoting the invoice number against which payment is made.

(3) Where the amount of any sum contained in any invoice is disputed, the undisputed amount of such invoice shall be paid by the undertaker on or before the due date except in the case of fraud. Where the amount of any sum is disputed, the undertaker shall notify the licensee or the duty holder as the case may be of the amount in dispute as soon as possible and, in any event, not later than twenty eight (28) days from the date of receipt of the invoice. For a period of thirty (30) days from the date of receipt by the licensee or the duty holder as the case may be of the notification of any disputed amount, the undertaker and the licensee or duty holder shall exercise reasonable endeavours to resolve the dispute. If the disputed amount is not resolved within such thirty (30) days of receipt of the notification, the disputed amount may be referred to arbitration for determination pursuant to paragraph 12 below. If the disputed amount is ultimately resolved or

determined in favour of the licensee or the duty holder, the undertaker shall pay to the licensee or duty holder as the case may be the difference between the original invoice amount already paid and the final agreed or determined amount.

~~(4) The aggregate cap of the undertaker's gross liability to pay compensation under the terms of this Part of this Schedule in respect of any additional costs which the licensee has incurred is limited to £3,000,000 (three million pounds) for all claims of compensation.~~

11. Nothing in this Part of this Schedule shall affect any rights or obligations or assessment of compensation in accordance with the ministerial statement and any associated guidance.

Arbitration

12. Any difference arising between the undertaker and the licensee under this Part shall be referred to and settled by arbitration under article 15 (arbitration).

PART 3

For the protection of the licensee of licences P.251, P.1483 and P.153~~Spirit Energy Production UK Limited~~

Application

1. For the protection of the licensee from time to time of the United Kingdom Petroleum Production Licences with references P.251, P.1483 and P.153 (as the same may be assigned, amended or replaced from time to time), ~~the duty holder of the Calder Platform and the CCUS licensee, which at the date stated in article 1 (citation and commencement) of this Order is Spirit Energy Production UK Limited~~ the provisions of this Part of this Schedule shall have effect for so long as the said licences shall remain in full force and effect, unless otherwise agreed between the undertaker and the licensee.

Interpretation

2. In this Part of this Schedule—

“1998 Act” means the Petroleum Act 1998(a);

“additional costs” means any costs incurred by the licensee in carrying out the licensee’s works, and relating to any of the following—

- (a) impaired helicopter access to the extent such helicopter operations can be reasonably demonstrated to have been necessary for the licensee’s works;
- (b) only to the extent not included in the calculation of costs relating to sub-paragraph (a), any use of vessels or alternative arrangements implemented to mitigate the likely extent of such impaired helicopter access, ~~subject to such use of vessels or alternative arrangements being approved in advance by the undertaker~~; or
- (c) impaired helicopter access to any drilling unit or rig being utilised for the purposes of the licensee’s works and any associated support vessels and service personnel resulting in such unit, rig, support vessel or service personnel being required for a longer period of time;

but in each case only to the extent that:

- (i) such costs have been incurred by the licensee as a result of the authorised development;

(a) 1998 c. 17.

- (ii) such costs have been reasonably and properly incurred by the licensee;
- (iii) the licensee provides reasonably documented evidence of such costs;
- (iv) the licensee and each relevant contractor, sub-contractor or agent have at all times used reasonable endeavours to minimise and mitigate such costs; and
- (v) such costs are not consequential loss;

~~“authorised development” has the same meaning as in Schedule 1 of this Order and shall include any part of the said works;~~

~~“cable” means the power and telecommunications cables connecting CPC to the DP3 wells shown purple and annotated as Morecambe to CPC to DP3 on the Spirit and Harbour Protective Provisions Plan;~~

~~“Calder Field” means the Calder offshore gas field which underlies United Kingdom Continental Shelf block 110/7a;~~

~~“Calder Field Facilities” means the facilities and infrastructure pertaining to the Calder Field;~~

~~“Calder Platform” means the normally unattended, minimum facilities wellhead platform located in the United Kingdom Continental Shelf block 110/7a D;~~

~~“CCUS licensee” means the holder from time to time of the Carbon Capture Appraisal and Storage licence CS010 (or any other licence which supersedes, replaces or follows on from such licence), which at the date stated in article 1 (citation and commencement) of this Order is Spirit Energy Production UK Limited;~~

“cessation of production” or “COP” means the date on which hydrocarbon production permanently ceases;

“coexistence agreement” means an agreement entered on reasonable terms between the undertaker and the licensee in respect of the authorised development and the licensee’s works to reconcile and protect the interests of the parties as are known at the time;

“consequential loss” means—

- (a) any consequential or indirect loss under English law; or
- (b) the following irrespective of whether direct, indirect or consequential loss—
 - (i) loss or damage arising out of any delay, postponement, interruption or loss of production of hydrocarbons, any inability to produce, process or deliver hydrocarbons or any loss of or anticipated loss of use, profit or revenue;
 - (ii) loss or damage incurred or liquidated or pre-estimated damages of any kind whatsoever borne or payable under any contract for sale, exchange, transportation, processing, storage or other disposal of hydrocarbons;
 - (iii) losses associated with business interruption including the costs of overheads incurred during business interruption;
 - (iv) loss of bargain, contract, expectation or opportunity; or
 - (v) any other loss or anticipated loss or damage whatsoever in the nature of or consequential upon the foregoing,

in either case (a) or (b) above howsoever caused or arising whether under contract, by virtue of any fiduciary duty, in tort or delict (including negligence), as a consequence of breach of any duty (statutory or otherwise) or under any other legal doctrine or principle whatsoever whether or not recoverable at common law or in equity and whether or not foreseeable at the date stated in article 1 (citation and commencement) of this Order;

~~“CPC” means the hydrocarbon production and processing facilities complex known generally as such or the Central Processing Complex located in the South Morecambe Field;~~

“DP3 wells” means the wells located at the site of the decommissioned drilling production platform 3 located at CPC the coordinates of which are 53° 49’ 0.6155” N and 003° 33’ 36.1013” W;

“Harbour Energy” means Chrysaor Resources (Irish Sea) Limited, a subsidiary of Harbour Energy PLC as holder from time to time of the Harbour Energy licence;

“Harbour Energy licence” means United Kingdom Petroleum Production Licence P099 (as the same may be assigned, amended or replaced from time to time);

“impaired helicopter access” means delays that occur in the movement of necessary personnel or materials (or both) by helicopter to or from ~~the Calder Field Facilities or~~ the South Morecambe Field Facilities (or any drilling unit or rig which is supporting the licensee’s works ~~at the Calder Field Facilities or~~ the South Morecambe Field Facilities);

~~“interim to enduring aviation buffer change date for Calder” means the earlier of the date of cessation of production at the Calder Platform or 1 January 2029;~~

“interim to enduring ~~aviation~~ buffer change date ~~for CPC~~” means the earlier of the date of cessation of production at CPC, ~~or~~ 1 January 2029, or if the undertaker has not commenced development by 1 January 2029, six months after the undertaker has given notice to the Secretary of State and the licensee or its intention to commence development;

“licence” means the United Kingdom Petroleum Production Licences with references P.251, P.1483 and P.153 (as the same may be assigned, amended or replaced from time to time);

“licensee” means—

- (a) the holders from time to time of any of the licences, which at the date stated in article 1 (citation and commencement) of this Order is Spirit Energy Production UK Limited; and
- (b) the duty holder of the Calder Platform, which at the date stated in article 1 (citation and commencement) of this Order is Spirit Energy Production UK Limited;

“licensee’s works” means—

- (a) exploration, appraisal, development, production, maintenance, interventions or decommissioning activity in accordance with and pursuant to the licence or any statutory decommissioning plan required under the 1998 Act in relation to the South Morecambe Field; and
- (b) the operations and services provided by the licensee for such time as they act as the duty holder to Harbour Energy in accordance with and pursuant to an operating agreement between the licensee and Harbour Energy;

“ministerial statement” means the written statement given by the Secretary of State for Energy and Climate Change to the UK Parliament regarding Crown Estate Leases for Offshore Renewables Projects on 12 July 2011, or any similar supplementary or replacement policy;

“offshore substation platform” or “OSP” means Work No. 2(a) from Part 1 of Schedule to the Order but excluding foundations;

“pipeline and cable proximity area” means the area five hundred meters (500m) either side and directly above the pipeline and cable, ~~shown coloured pink and annotated and shown as the pipeline and cable proximity area on the Spirit and Harbour Protective Provisions Plan;~~

“pipeline” means—

- (a) the decommissioned 24" inch gas Morecambe DP3 to CPC pipeline with pipeline reference number PL195; and
- (b) the decommissioned 2" inch Morecambe CPC to DP3 pipeline with pipeline reference number PL205;

~~shown green and annotated as Morecambe CPC to DP3 on the Spirit and Harbour Protective Provisions Plan,~~ together with any associated umbilicals, plant and equipment serving those pipelines;

“relevant activities” means all development activity relating to the carrying on of the undertaker’s and licensee’s businesses within or adjacent to—

- (a) the pipeline and cable proximity area;
- (b) the well buffer zone

- (c) the WTG and OSP aviation enduring buffer zone;
- (d) the WTG and OSP marine buffer zone;
- (e) the WTG aviation interim buffer zone; or
- (f) the WTG marine corridor;

as the case may be, including (but not limited to) the preparation of development proposals, the submission of applications for statutory consents associated with those proposals and consultation in respect thereof, or the acquisition of or application for new oil or gas blocks;

“South Morecambe Field” means the South Morecambe offshore gas field which underlies United Kingdom Continental Shelf blocks 110/2a (including the South Morecambe portion of the block which is served by CPC, and excluding the North Morecambe portion of the block which is not served by CPC), 110/3a and 110/8a;

“South Morecambe Field Facilities” means the facilities and infrastructure pertaining to the South Morecambe Field;

~~“Spirit and Harbour Protective Provisions Plan” means the plan certified as the Spirit and Harbour Protective Provisions Plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;~~

“temporary surface infrastructure” means any fixed temporary infrastructure to be used in the construction, operation and maintenance, and decommissioning of the authorised development including, but not limited to, jack-up barges and buoys, but does not include temporary surface infrastructure in transit;

“well buffer zone” means a one hundred metre (100m) buffer zone around the following three legacy and relief well top-hole locations situated within the Order limits and listed in Table 3—

Table 13

<i>Well</i>	<i>UTM-X (m)</i>	<i>UTM-Y (m)</i>	<i>Latitude</i>	<i>Longitude</i>
DP3 (C1)	463127.8	5963416.1	53°49'0.6155"N	3°33'36.1013"W
110/8-2	463380.9	5964662.3	53°49'40.9985" N	3°33'22.7997"W
110/8a-C5 (Relief)	462650	5964650	53°49'40.4140" N	3°34'2.7666"W

“wind turbine generator” or “WTG” means Work No. 1(a) from Part 1 of Schedule to the Order but excluding foundations;

“WTG and OSP aviation enduring buffer zone” means two circular areas each of one point ~~five~~ nine nautical miles (1.95 nm) measured from the nearest outer extremity edge of each of CPC and the Calder Platform to any tip from any wind turbine generator or to any OSP located within the Order limits and extending vertically from mean sea level, ~~shown edged blue and annotated and shown as the WTG and OSP aviation enduring buffer zone on the Spirit and Harbour Protective Provisions Plan;~~

“WTG and OSP marine buffer zone” means an area of one point five nautical miles (1.5 nm) measured from the outer extremity edge of CPC and extending vertically from mean sea level ~~shown edged in light green and annotated and shown as the WTG and OSP marine buffer zone on the Spirit and Harbour Protective Provisions Plan;~~

“WTG aviation corridor” means a two nautical mile (2 nm) wide corridor by a distance of three point seven six nautical miles (3.76 nm) long angled at 220 degrees from CPC set one nautical mile (1.0 nm) each side of CPC ~~shown edged in orange and annotated and shown as the WTG aviation corridor on the Spirit and Harbour Protective Provisions Plan;~~

“WTG aviation interim buffer zone” means two circular areas each of three point seven six nautical miles (3.76 nm) measured from the nearest outer extremity edge of each of CPC and the Calder Platform to any tip from any wind turbine generator located within the Order limits and extending vertically from mean sea level, ~~shown edged light blue and annotated and~~

~~shown as the WTG aviation interim buffer zone on the Spirit and Harbour Protective Provisions Plan; and~~

“WTG marine corridor” means a one nautical mile (1 nm) wide corridor of clear sea space between the Calder Platform and CPC set half a nautical mile (0.5 nm) around the outer extremity edge of each of the Calder Platform and CPC ~~shown edged in dark green and annotated and shown as the WTG marine corridor on the Spirit and Harbour Protective Provisions Plan.~~

Restriction on authorised development

3.—(1) No wind turbine generator, offshore substation platform or temporary surface infrastructure shall be erected in the pipeline and cable proximity area, the WTG and OSP marine buffer zone or the WTG marine corridor unless otherwise agreed between the licensee and the undertaker.

(2) In the case of temporary surface infrastructure the licensee may not unreasonably withhold consent where the undertaker has been reasonably requested to place temporary infrastructure in the pipeline and cable proximity area, the WTG and OSP marine buffer zone or the WTG marine corridor by a statutory consultee.

4.—(1) No wind turbine generator shall be erected—

- (a) in the WTG aviation interim buffer zone around CPC prior to the interim to enduring aviation buffer change date ~~for CPC~~; or
- (b) in the WTG aviation interim buffer zone around ~~the Calder Platform~~ CPC prior to the interim to enduring aviation buffer change date ~~for Calder~~,

unless otherwise agreed between the licensee and the undertaker.

(2) No wind turbine generator or offshore substation platform shall be erected in the WTG and OSP aviation enduring buffer zone at any time unless otherwise agreed between the licensee and the undertaker.

5. No wind turbine generator shall be erected in the WTG aviation corridor unless otherwise agreed between the licensee and the undertaker.

6. No wind turbine generator or offshore substation platform shall be erected in the well buffer zone unless otherwise agreed between the licensee ~~or CCUS licensee~~ and the undertaker.

~~7.—(1) The restrictions in paragraphs 3, 4 and 5 (in respect of the WTG aviation interim buffer zone, the WTG and OSP aviation enduring buffer zone, the WTG and OSP marine buffer zone, the WTG marine corridor and the WTG aviation corridor) shall cease to have effect.—~~

~~(a) —with regard to CPC, if the Secretary of State, having consulted with the licensee, has confirmed in writing that CPC has been decommissioned; and~~

~~(b) 7. with regard to the Calder Platform, if the Secretary of State, having consulted with Harbour Energy, has confirmed in writing that the Calder Platform has been decommissioned.~~

Coexistence agreement

8. Prior to the commencement of construction of the authorised development, the undertaker and the licensee shall use reasonable endeavours to enter into a coexistence agreement (which shall include provision for proximity agreements on standard UK oil and gas industry terms and arrangements for coordinating marine access and simultaneous operations).

Provision of information

9. Without prejudice to any other rights or obligations under this Part of this Schedule the licensee and the undertaker shall from time to time keep each other informed of relevant activities

such that the licensee and the undertaker may seek to agree solutions to allow those activities to successfully co-exist as far as reasonably practicable until completion of activities required under any statutory decommissioning plan required under the 1998 Act in relation to the licences.

Cooperation

10. The undertaker and the licensee must each act in good faith and use reasonable endeavours to cooperate with, and provide assistance to, each other as may be required to give effect to the provisions of this Schedule.

Compensation

11.—(1) The licensee shall, as soon as reasonably practicable after incurring any additional costs, serve the undertaker with an itemised invoice which details the amount payable to the licensee which compensates the licensee for incurring such additional costs.

(2) Subject to sub-paragraph (3), within 28 days of receipt of such an itemised invoice, the undertaker shall pay the licensee's costs detailed in such itemised invoice by electronic transfer in immediately available funds to the licensee, to such account as is designated by the licensee, quoting the invoice number against which payment is made.

(3) Where the amount of any sum contained in any invoice is disputed, the undisputed amount of such invoice shall be paid by the undertaker on or before the due date except in the case of fraud. Where the amount of any sum is disputed, the undertaker shall notify the licensee of the amount in dispute as soon as possible and, in any event, not later than twenty eight (28) days from the date of receipt of the invoice. For a period of thirty (30) days from the date of receipt by the licensee of the notification of any disputed amount, the undertaker and the licensee shall exercise reasonable endeavours to resolve the dispute. If the disputed amount is not resolved within such thirty (30) days of receipt of the notification, the disputed amount may be referred to arbitration for determination pursuant to paragraph 13 below. If the disputed amount is ultimately resolved or determined in favour of the licensee, the undertaker shall pay to the licensee the difference between the original invoice amount already paid and the final agreed or determined amount.

~~(4) The aggregate cap of the undertaker's gross liability to pay compensation under the terms of this Part of this Schedule in respect of any additional costs which the licensee has incurred is limited to £10,000,000 (ten million pounds) for all claims of compensation.~~

12. Nothing in this Part of this Schedule shall affect any rights or obligations or assessment of compensation in accordance with the ministerial statement and any associated guidance.

Arbitration

13. Any difference arising between the undertaker and the licensee under this Part shall be referred to and settled by arbitration under article 15 (arbitration).

Recommended changes to Parts 2 and 3 of Schedule 4

Provision		Change
Title of Part 2		Replace “Harbour Energy” with “the licensee and duty holder of the Calder Field”
<u>Part 2</u>		
Paragraph 1		After “licensee” the first time it occurs insert “and the duty holder” Delete “, which at the date of article 1 (citation and commencement) of this Order is Harbour Energy,” After “licensee” the second time it occurs insert “or the duty holder as the case may be” Replace “until completion of all activities required under any statutory decommissioning plan required under the 1998 Act in relation to the Calder Field” with “in accordance with paragraphs 3 to 6”
Paragraph 2		
In the definition of “additional costs”		After “works” insert “or the duty holder’s operations”
	In sub-paragraph (a)	After “necessary for the” insert “operation and maintenance or”
	In sub-paragraph (b)	Delete “, subject to such use of vessels or alternative arrangements being approved in advance by the undertaker”
	In sub-paragraph (c)	After “purposes of” insert “operation, maintenance or”
	In sub-paragraphs (c)(i), (ii), (iii) and (iv)	After “licensee” insert “or duty holder” each time they occur
	In sub-paragraph (v)	Delete “; and”
	Sub-paragraph (vi)	Delete provision
The definition of “authorised development”		Delete provision

Provision		Change
In the definition of “cable”		Delete “shown purple and annotated as Calder to CPC on the Spirit and Harbour Protective Provisions Plan”
The definition of “Calder Field”		Delete provision
The definition of “Calder Field Facilities”		Delete provision
In the definition of “co-existence agreement”		After “agreement” insert “or agreements” After “licensee” insert “or the undertaker and the duty holder” After “licensee’s” insert “or the duty holder’s”
In the definition of “consequential loss”		After “means” insert “— (a) “
	After new sub-paragraph (a)	Insert: “(b) the following irrespective of whether direct, indirect or consequential loss— (i) loss or damage arising out of any delay, postponement, interruption or loss of production of hydrocarbons, any inability to produce, process or deliver hydrocarbons or any loss of or anticipated loss of use, profit or revenue; (ii) loss or damage incurred or liquidated or pre-estimated damages of any kind whatsoever borne or payable under any contract for sale, exchange, transportation, processing, storage or other disposal of hydrocarbons; (iii) losses associated with business interruption including the costs of overheads incurred during business interruption; (iv) loss of bargain, contract, expectation or opportunity; or (v) any other loss or anticipated loss or damage whatsoever in the nature of or consequential upon the foregoing,

Provision	Change
The definition of "CPC"	Delete provision
After amended definition of "consequential loss"	Insert: "duty holder" means the duty holder for time to time of the Calder Platform, which at the date stated in article 1 (citation and commencement) of this order is Spirit Energy Production Limited; "duty holder's operations" means the operations and services provided by the duty holder to the licensee in accordance with and pursuant to an operating agreement between the duty holder and the licensee;
In definition of "impaired helicopter access"	After "licensee's" insert "or the duty holder's"
In definition of "interim to enduring aviation buffer change date for Calder"	Delete "for Calder" Delete "or" After "1 January 2029" insert "or if the undertaker has not commenced development by 1 January 2029 six months after the undertaker has given notice to the Secretary of State, the duty holder and the licensee or its intention to commence Development"
In the definition of "pipeline and cable proximity area"	Delete ", shown coloured pink and annotated and shown as the pipeline and cable proximity area on the Spirit and Harbour Protective Provisions Plan"
In the definition of "pipeline"	Replace "" with "inch" each time it occurs Delete "shown green and annotated as the Calder to Rivers Onshore Terminal (PL1966) and Rivers Onshore Terminal to Calder (PL1965) on the Spirit and Harbour Protective Provisions Plan"
The definition of "Spirit and Harbour Protective Provisions Plan"	Delete provision

Provision		Change
In the definition of “WTG and OSP aviation enduring buffer zone”		Replace “one point five nautical miles (1.5 nm)” with “one point nine nautical miles (1.9 nm)” Delete “, shown edged blue and annotated and shown as the WTG and OSP aviation enduring buffer zone on the Spirit and Harbour Protective Provisions Plan”
In the definition of “WTG aviation corridor”		After “wide corridor” insert “by a distance of three point seven six nautical miles (3.76 nm) long” After “CPC” insert “set one nautical mile (1 nm) each side of CPC” Delete “shown edged in orange and annotated and shown as the WTG aviation corridor on the Spirit and Harbour Protective Provisions Plan”
In the definition of “WTG aviation interim buffer zone”		Delete “, shown edged light blue and annotated and shown as the WTG aviation interim buffer zone on the Spirit and Harbour Protective Provisions Plan”
In the definition of “WTG marine corridor”		After “CPC” insert “set half a nautical mile (0.5nm) around the outer extremity edge of each of the Calder Platform and CPC” Delete “shown edged in dark green and annotated and shown as the WTG marine corridor on the Spirit and Harbour Protective Provisions Plan”
Paragraph 3	In sub-paragraphs (1) and (2)	After “licensee” insert “or the duty holder” in each case
Paragraph 4	In sub-paragraphs (1) and (2)	After “licensee” insert “or the duty holder” in each case
Paragraph 5		After “licensee” insert “or the duty holder”
Paragraph 7		After “licensee” insert “and the undertaker and the duty holder”
Paragraph 8		After “licensee” insert “, the duty holder”
Paragraph 10	In sub-paragraph (1)	After “licensee” insert “or the duty holder”
	In sub-paragraph (2)	After “licensee’s costs” insert “or the duty holder’s costs as the case may be” After “licensee” insert “or the duty holder” each time it occurs

Provision		Change
	In sub-paragraph (3)	After “the undertaker shall notify the licensee” insert “or the duty holder as the case may be” After “the date of receipt by the licensee” insert “or the duty holder as the case may be” After “the undertaker and the licensee” insert “or duty holder” After “favour of the licensee” insert “or the duty holder” After “shall pay to the licensee” insert “or duty holder as the case may be”
	Sub-paragraph (4)	Delete provision
Title of Part 3		Replace “Spirit Energy Production UK Limited” with “the licensee of licences P.251, P1183 and P.153
<u>Part 3</u>		
Paragraph 1		Delete “the duty holder of the Calder Platform and the CCUS licensee, which at the date stated in article 1 (citation and commencement) of this Order is Spirit Energy Production UK Limited”
Paragraph 2		
In the definition of “additional costs”	In sub-paragraph (b)	Delete “, subject to such use of vessels or alternative arrangements being approved in advance by the undertaker”
The definition of “authorised development”		Delete provision
In the definition of “Cable”		Delete “shown purple and annotated as Morecambe to CPC to DP3 on the Spirit and Harbour Protective Provisions Plan”
The definition of “Calder Field”		Delete provision
The definition of “Calder Field Facilities”		Delete provision

Provision	Change
The definition of “CCUS licensee”	Delete provision
The definition of “CPC”	Delete provision
In the definition of “impaired helicopter access”	Delete “the Calder Field Facilities or” and “at the Calder Field Facilities”
The definition of “interim to enduring buffer change date for Calder”	Delete provision
In the definition of “interim to enduring aviation buffer change date for CPC”	Replace “interim to enduring aviation buffer change date for CPC” with “interim to enduring buffer change date” Replace “at CPC” with “at CPC,” Delete “or” After 1 January 2029 insert “, or if the undertaker has not commenced development by 1 January 2029, six months after the undertaker has given notice to the Secretary of State and the licensee or its intention to commence development”
In the definition of “pipeline and cable proximity area”	Delete “, shown coloured pink and annotated and shown as the pipeline and cable proximity area on the Spirit and Harbour Protective Provisions Plan”
In the definition of “pipeline”	Replace “” with “inch” each time it occurs Delete “shown green and annotated as the CPC to DP3 on the Spirit and Harbour Protective Provisions Plan”

Provision		Change
The definition of "Spirit and Harbour Protective Provisions Plan"		Delete provision
In the definition of "WTG and OSP aviation enduring buffer zone"		Replace "one point five nautical miles (1.5 nm)" with "one point nine nautical miles" Delete ", shown edged blue and annotated and shown as the WTG and OSP aviation enduring buffer zone on the Spirit and Harbour Protective Provisions Plan"
In the definition of "WTG and OSP marine buffer zone"		Delete ", shown edged in light green and annotated and shown as the WTG and OSP marine buffer zone on the Spirit and Harbour Protective Provisions Plan"
In the definition of "WTG aviation corridor"		After "wide corridor" insert "by a distance of three point seven six nautical miles (3.76 nm) long" After "CPC" insert "set one nautical mile (1.0 nm) each side of CPC" Delete "shown edged in orange and annotated and shown as the WTG aviation corridor on the Spirit and Harbour Protective Provisions Plan"
In the definition of "WTG aviation interim buffer zone"		Delete ", shown edged light blue and annotated and shown as the WTG aviation interim buffer zone on the Spirit and Harbour Protective Provisions Plan"
In the definition of "WTG marine corridor"		Replace "shown edge in dark green and annotated and shown as the WTG marine corridor on the Spirit and Harbour Protective Provisions Plan" with "set half a nautical mile (0.5 nm) around the extremity edge of the Calder Platform and CPC"
Paragraph 4	In sub-paragraph (1)(a)	Delete "for CPC"
	In sub-paragraph (1)(b)	Replace "the Calder Platform" with "CPC" Delete "for Calder"
Paragraph 6		Delete "or CCUS licensee"

Provision		Change
Paragraph 7		Delete (1) After “effect” delete “— (a)” Delete “; and” and sub-paragraph (b)
Paragraph 11(4)		Delete provision

APPENDIX E: THE RECOMMENDED DCO

202[] No. []

INFRASTRUCTURE PLANNING

**The Morecambe Offshore Windfarm Generation Assets Order
202[]**

<i>Made</i>	- - - -	***
<i>Laid before Parliament</i>		***
<i>Coming into force</i>		***

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An application has been made to the Secretary of State under section 37 of the Planning Act 2008^(a) (“the 2008 Act”) and in accordance with the Infrastructure Planning (Applications: Prescribed Forms and Procedures) Regulations 2009^(b) for an Order granting development consent.

The application was examined by an Examining Authority of 3 members (appointed by the Secretary of State) in accordance with Part 6 of the 2008 Act and carried out in accordance with the Infrastructure Planning (Examination Procedure) Rules 2010^(c).

The Examining Authority, having considered the application together with the documents that accompanied it, and the representations made and not withdrawn, has, in accordance with section 74(2)^(d) of the 2008 Act made a report and recommendation to the Secretary of State.

The Secretary of State has considered [the representations made and not withdrawn, and] the report and recommendation of the Examining Authority, has taken into account the environmental information in accordance with regulation 4 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017^(e), and, as national policy statements have effect in relation to the

(a) 2008 c. 29. Section 37 was amended by section 128(2) and paragraphs 1 to 5 of Schedule 13 to the Localism Act 2011 (c. 20).

(b) S.I. 2009/2264.

(c) S.I. 2010/2013, amended by S.I. 2012/635.

(d) Section 74 was amended by sections 128(2) and 237 and paragraph 29 of Schedule 13 and paragraph 1 of Schedule 25 to the Localism Act 2011 (c. 20).

(e) S.I. 2017/572.

proposed development, has had regard to the documents and matters referred to in section 104(a) of the 2008 Act.

The Secretary of State in exercise of the powers conferred by sections 114, 115, 120(b), 140 and 149A(c) of the 2008 Act, makes the following Order:

PART 1

Preliminary

Citation and commencement

1. This Order may be cited as the Morecambe Offshore Windfarm Generation Assets Order 202[•] and comes into force on [•] 202[•].

Interpretation

2.—(1) Except for Schedule 6 (Deemed Marine Licence under the 2009 Act: Morecambe Offshore Windfarm Generation Assets), which is subject to the definitions in that Schedule, in this Order—

“1989 Act” means the Electricity Act 1989(d);

“2004 Act” means the Energy Act 2004(e);

“2008 Act” means the Planning Act 2008(f);

“2009 Act” means the Marine and Coastal Access Act 2009(g);

“2016 Order” means the Air Navigation Order 2016(h);

“address” includes any number or address used for the purposes of electronic transmission;

“ancillary works” means the ancillary works described in Part 2 (ancillary works) of Schedule 1 and any other works authorised by this Order that are not development within the meaning of section 32 of the 2008 Act;

“authorised development” means the development and associated development described in Part 1 (authorised development) of Schedule 1 and any other development authorised by this Order that is development within the meaning of section 32 of the 2008 Act;

“authorised project” means the authorised development and the ancillary works authorised by this Order;

“bank holiday” means a bank holiday in England and Wales under section 1 of the Banking and Financial Dealings Act 1971(i);

“buoy” means any floating device used for navigational purposes or measurement purposes, including wave buoys, LiDAR, guard buoys and mooring buoys;

“CAA” means the Civil Aviation Authority constituted by the Civil Aviation Act 1982(j);

-
- (a) Section 104 was amended by paragraphs 49 and 54 of Schedule 13 to the Localism Act 2011 (c. 20).
(b) Sections 114, 115 and 120 were amended by sections 128(2) and 140 and Schedule 13, paragraphs 1, 55(1), (2) and 60(1) and (3) of the Localism Act 2011 (c. 20). Relevant amendments were made to section 115 by section 160(1) to (6) of the Housing and Planning Act 2016 (c. 22).
(c) Section 149A was inserted by paragraph 4 in Part 1 of Schedule 8 to the Marine and Coastal Access Act 2009 (c. 23).
(d) 1989 c. 29.
(e) 2004 c. 20. Section 105 was amended by section 69 of the Energy Act 2008 (c. 32).
(f) 2008 c. 29.
(g) 2009 c. 23.
(h) S.I. 2016/765.
(i) 1971 c. 80.
(j) 1982 c. 16.

“cable” means any cable up to 275kV for the transmission of electricity and includes direct lay cables, cables laid in cable ducts or protective covers, and further includes fibre optic and other communications cables either within the cable or laid alongside;

“cable crossings” means the crossing of existing sub-sea cables, pipelines or other existing infrastructure by the cables authorised by this Order together with cable protection;

“cable protection” means measures to protect cables from physical damage and exposure due to loss of seabed sediment including but not limited to rock placement or rock berms, concrete mattresses, the use of bagged solutions filled with grout or other materials and flow energy dissipation devices;

“Calder Field” means the Calder offshore gas field which underlies United Kingdom Continental Shelf block 110/7a;

“Calder Field Facilities” means the facilities and infrastructure pertaining to the Calder Field;

“commence” means the first carrying out of any licensed activities authorised by the deemed marine licence, save for operations consisting of pre-construction surveys, monitoring surveys and unexploded ordnance surveys, and any derivative of “commence” is to be construed accordingly;

“CPC” means the hydrocarbon production and processing facilities complex known generally as such or the Central Processing Complex located in the United Kingdom Continental Shelf block 110/2a, 110/3a and 110/8a;

“decommissioning programme” has the meaning given by section 105(2) of the 2004 Act(a);

“deemed marine licence” means the licence set out in Schedule 6 (Deemed Marine Licence under the 2009 Act: Morecambe Offshore Windfarm Generation Assets);

“Defence Infrastructure Organisation Safeguarding” means Ministry of Defence Safeguarding, Defence Infrastructure Organisation – Safeguarding, St George’s House, DIO Head Office, DMS Whittington, Lichfield, Staffordshire, WS14 9PY and any successor body to its functions;

“design statement” means the document certified as the design statement by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“DF” means direction finding;

“draft marine mammal mitigation protocol” means the document certified as the draft marine mammal mitigation protocol by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“electronic transmission” or “electronically” means a communication transmitted—

- (a) by means of an electronic communications network; or
- (b) by other means but whilst in electronic form;

“environmental statement” means the document certified as the environmental statement by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“foundation” means any one or more of:

- (a) a gravity base foundation;
- (b) a multi-legged jacket with piling foundation;
- (c) a monopile foundation; or
- (d) a multi-legged jacket with suction bucket foundation;

“gravity base foundation” means a structure principally of steel, concrete, or steel and concrete with a base which rests on the seabed either due to its own weight with or without added ballast or additional skirts and associated equipment including scour protection, J-tubes, corrosion protection systems and access platforms and equipment;

“HAT” means highest astronomical tide;

(a) 2004 c. 20. Section 105 was amended by section 69 of the Energy Act 2008 (c. 32).

“HVAC” means high voltage alternating current;

“IFP” means instrument flight procedures;

“in principle monitoring plan” means the document certified as the in principle monitoring plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“inter-array cables” means the HVAC cables linking the wind turbine generators to each other and to the offshore substation platforms;

“km” means kilometres and “km²” means square kilometres;

“kV” means kilovolt;

“LAT” means lowest astronomical tide;

“LiDAR” means a light detection and ranging system used to measure weather and sea conditions;

“m” means metres, “m²” means square metres and “m³” means cubic metres;

“maintain” includes inspect, maintain, upkeep, repair, adjust and alter the authorised project, and further includes remove, reconstruct and replace any of the ancillary works and any component part of the authorised project (but not including the removal or replacement of foundations) provided that such works do not give rise to any materially new or materially different environmental effects to those identified in the environmental statement; and any derivative of “maintain” is to be construed accordingly;

“Marine Management Organisation” or “MMO” means the body created under the 2009 Act which is responsible for the regulation of the deemed marine licence or any successor of that function;

“MCA” means the Maritime and Coastguard Agency, the executive agency of the Department for Transport;

“MHWS” means Mean High Water Springs;

“monopile foundation” means a steel pile either driven or driven and drilled into the seabed and associated equipment including scour protection, equipment including J-tubes, corrosion protection systems and access platforms and equipment;

“MSA” means minimum sector altitude;

“multi-legged jacket with piling foundation” means a steel jacket/lattice-type structure constructed of steel, fixed to the seabed with concrete or hollow steel pin piles and associated equipment including scour protection, J-tubes, corrosion protection systems and access platforms and equipment;

“multi-legged jacket with suction bucket foundation” means a steel jacket/lattice-type structure constructed of steel, fixed to the seabed with a tubular steel structure which partially or fully penetrates the seabed securing the jacket foundations by means of suction generated on the inside of the bucket and associated equipment, including scour protection, J-tubes, corrosion protection systems and access platforms and equipment;

“offshore location plan” means the document certified as the offshore location plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“offshore order limits and grid coordinates plan” means the document certified as the offshore order limits and grid coordinates plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“offshore substation platform” or “OSP” means a structure above LAT and attached to the seabed by means of one or more foundations, with one or more decks and open with modular equipment or fully clad, containing—

(a) electrical equipment required to switch, transform or convert electricity generated at the wind turbine generators to a higher voltage and provide reactive power compensation, including high voltage power transformers, high voltage switchgear and busbars, substation auxiliary systems and low voltage distribution, instrumentation, metering

equipment and control systems, standby generators, shunt reactors, auxiliary and uninterruptible power supply systems;

- (b) accommodation, storage, workshop auxiliary equipment and facilities for operating, maintaining and controlling the substation or wind turbine generators, including navigation, aviation and safety marking and lighting, systems for vessel access and retrieval, cranes, potable water supply, black water separation, stores, fuels and spares, communications systems and control hub facilities;

“offshore works plan” means the document certified as the offshore works plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“operation” means the undertaking of activities authorised by this Order which are not part of the construction, commissioning or decommissioning of the authorised project;

“Order limits” means the limits shown on the offshore works plan within which the authorised project may be carried out, whose grid coordinates are set out in Part 1 of Schedule 1 (authorised development) of this Order and shown on the offshore order limits and grid coordinates plan;

“outline construction method statement” means the document certified as the outline construction method statement by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“outline fisheries liaison and co-existence plan” means the document certified as the outline fisheries liaison and co-existence plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“outline offshore operation and maintenance plan” means the document certified as the outline offshore operation and maintenance plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“outline offshore written scheme of investigation” means the document certified as the outline offshore written scheme of investigation by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“outline port access and transport plan” means the document certified as the outline port access and transport plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“outline project environmental management plan” means the document certified as the outline project environmental management plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“outline scour protection and cable protection plan” means the document certified as the outline scour protection and cable protection plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“outline skills and employment plan” means the document certified as the outline skills and employment plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“outline underwater sound management strategy” means the document certified as the outline underwater sound management strategy by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“outline vessel traffic management plan” means the document certified as the outline vessel traffic management plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“pin piles” means steel or concrete cylindrical piles either driven or driven and drilled into the seabed to secure steel jacket foundations;

“platform link cables” means the HVAC cables linking the offshore substation platforms to each other;

“requirements” means those matters set out in Schedule 2 (requirements) to this Order;

“row” means a row of wind turbine generators perpendicular to the prevailing wind;

“scour protection” means measures to prevent loss of seabed sediment around any structure placed in or on the seabed including but not limited to by the use of bagged solutions filled with grout or other materials, protective aprons, mattresses with or without frond devices, and rock, concrete and gravel placement;

“statutory historic body” means Historic England or its successor in function;

“statutory nature conservation body” means a statutory nature conservation body, being the appropriate nature conservation body as defined in Regulation 5 of the Conservation of Habitats and Species Regulations 2017(a) or its equivalent in the Conservation of Offshore Marine Habitats and Species Regulations 2017(b);

“transition piece” means the metal structure attached to the top of the foundation where the base of the wind turbine generator is connected and may include additional equipment such as J-tubes, corrosion protection systems, boat access systems, access platforms, craneage, radar, electrical transmission equipment and associated equipment;

“Trinity House” means the Corporation of Trinity House of Deptford Strond;

“UHF” means ultra high frequency;

“undertaker” means Morecambe Offshore Windfarm Ltd (company registration number: SC734062), or any person who has the benefit of this Order in accordance with Article 7 (benefit of the Order);

“vessel” means every description of vessel, however propelled or moved, and includes a non-displacement craft, a personal watercraft, a seaplane on the surface of the water, a hydrofoil vessel, a hovercraft or any other amphibious vehicle and any other thing constructed or adapted for movement through, in, on, under or over water and which is at the time in, on, under or over water;

“VHF” means very high frequency;

“wind turbine generator” or “WTG” means a structure comprising a tower, rotor with three blades connected at the hub, nacelle and ancillary electrical and other equipment which may include J-tubes, transition piece, access and rest platforms, access ladders, boat access systems, corrosion protection systems, fenders and maintenance equipment, helicopter hoisting facilities and other associated equipment including communications equipment, fixed to a foundation or transition piece; and

“working day” means a day other than a Saturday or Sunday, a bank holiday or other public holiday in England and Wales.

(2) All distances, directions, areas and lengths referred to in this Order are approximate and distances between points on a work comprised in the authorised project are taken to be measured along that work.

(3) References in this Order to points identified by letters or numbers are to be construed as references to points so lettered or numbered on the relevant plans.

(4) References in this Order to numbered works are references to the works as numbered in Part 1 of Schedule 1 (authorised development).

(5) The expression “includes” is to be construed without limitation unless the contrary intention appears.

(6) A reference to any statute, order, regulation or similar instrument in this Order is construed as a reference to a statute, order, regulation or instrument as amended by any subsequent statute, order, regulation or instrument or as contained in any subsequent re-enactment.

(a) S.I. 2017/1012.

(b) S.I. 2017/1013.

PART 2

Principal Powers

Development consent etc. granted by the Order

3.—(1) Subject to the provisions of this Order and to the requirements the undertaker is granted—

- (a) development consent for the authorised development; and
- (b) consent for the ancillary works;

to be carried out within the Order limits.

Operation of a generating station

4.—(1) The undertaker is authorised to use and operate the authorised development for which development consent is granted by this Order.

(2) Paragraph (1) does not relieve the undertaker of any requirement to obtain any permit or licence under any legislation that may be required from time to time to authorise the operation of the authorised project.

Deemed marine licence under the 2009 Act

5. The marine licence set out in Schedule 6 (Deemed Marine Licence under the 2009 Act: Morecambe Offshore Windfarm Generation Assets) is deemed to have been granted to the undertaker under Part 4 (marine licensing) of the 2009 Act for the licensed activities specified in Part 1 of the marine licence and subject to the conditions specified in Part 2 of the marine licence.

Power to maintain the authorised project

6.—(1) The undertaker may at any time maintain the authorised project, except to the extent that this Order or an agreement made under this Order provides otherwise.

(2) Paragraph (1) does not relieve the undertaker of any requirement to obtain any further licence under Part 4 (marine licensing) of the 2009 Act for licensable activities not covered by the deemed marine licence.

Benefit of the Order

7.—(1) Subject to this article, the provisions of this Order have effect solely for the benefit of the undertaker.

(2) Subject to paragraphs (3), (4) and (5) the undertaker may with the written consent of the Secretary of State—

- (a) transfer to another person (“the transferee”) any or all of the benefit of the provisions of this Order (including the deemed marine licence) and such related statutory rights as may be agreed between the undertaker and the transferee; and
- (b) grant to another person (“the lessee”) for a period agreed between the undertaker and the lessee any or all of the benefit of the provisions of this Order (including the deemed marine licence) and such related statutory rights as may be so agreed,

except where paragraph (5) applies, in which case the consent of the Secretary of State is not required.

(3) The Secretary of State must notify the MMO, and must have regard to any response received from the MMO within 28 days of notification, before giving consent to the transfer or grant to another person of the benefit of any or all of the provisions of the deemed marine licence.

(4) Where the undertaker has transferred any benefit, or for the duration of any period during which the undertaker has granted any benefit, under paragraph (2)—

- (a) the benefit transferred or granted (“the transferred benefit”) shall include any rights that are conferred, and any obligations that are imposed, by virtue of the provisions to which the benefit relates;
- (b) the transferred benefit shall reside exclusively with the transferee or, as the case may be, the lessee and the transferred benefit is not enforceable against the undertaker save in the case of a deemed marine licence transferred or granted in respect of any breach of an obligation by the undertaker which occurs prior to such transfer or grant or which occurs as a result of any activity carried out by the undertaker on behalf of the transferee; and
- (c) the exercise by a person of any benefits or rights conferred in accordance with any transfer or grant under paragraph (2) is subject to the same restrictions, liabilities and obligations as would apply under this Order if those benefits or rights were exercised by the undertaker.

(5) This paragraph applies where the transferee or lessee is the holder of a licence under section 6 (licences authorising supply, etc.) of the 1989 Act.

(6) Where an agreement has been made in accordance with paragraph (2) references in this Order to the undertaker, except in paragraph (4), (7), (10) and (11), will include references to the transferee or lessee.

(7) Prior to any transfer or grant under this article taking effect the undertaker must give notice in writing to the Secretary of State and the MMO.

(8) A notice required under paragraph (7) must—

- (a) state—
 - (i) the name and contact details of the person to whom the benefit of the provisions will be transferred or granted;
 - (ii) subject to paragraph (9), the date on which the transfer will take effect;
 - (iii) the provisions to be transferred or granted; and
 - (iv) the restrictions, liabilities, and obligations that, in accordance with sub-paragraph (4)(c), will apply to the person exercising the powers transferred or granted;
- (b) be accompanied by—
 - (i) where relevant, a plan showing the works or areas to which the transfer or grant relates; and
 - (ii) a copy of the document effecting the transfer or grant signed by the undertaker and the person to whom the benefit of the powers will be transferred or granted.

(9) The date specified under paragraph (8)(a)(ii) must not be earlier than the expiry of fourteen days from the date of the receipt of the notice.

(10) The notice given under paragraph (7) must be signed by the undertaker and the person to whom the benefit of the powers will be transferred or granted as specified in that notice.

(11) Section 72(7) and (8) of the 2009 Act do not apply to a transfer or grant of the whole or part of the benefit of the provisions of the deemed marine licence to another person by the undertaker pursuant to an agreement under this article save that the MMO may amend any deemed marine licence granted under Schedule 6 of this Order to change the name of the undertaker to the name of a transferee or lessee under this article.

(12) A notice given under paragraph (7) is deemed to have been given in writing where it is sent electronically.

PART 3

Miscellaneous and general

Abatement of works abandoned or decayed

8. Where the authorised development or any part of it or any part of the ancillary works are abandoned or allowed to fall into decay, the Secretary of State may, following consultation with the undertaker, issue a written notice requiring the undertaker at its own expense either to repair, make safe or restore one or any of those works, or remove such authorised development or any relevant part of it or any ancillary works, without prejudice to any notice served under section 105(2) (requirement to prepare decommissioning programmes) of the 2004 Act^(a). The notice may also require the restoration of the site of the relevant part(s) of the authorised development or ancillary works.

Saving provisions for Trinity House

9. Nothing in this Order prejudices or derogates from any of the rights, duties or privileges of Trinity House.

Crown rights

10.—(1) Nothing in this Order affects prejudicially any estate, right, power, privilege, authority or exemption of the Crown and in particular, nothing in this Order authorises the undertaker or any lessee or licensee to take, use, enter upon or in any manner interfere with any land or rights of any description (including any portion of the shore or bed of the sea or any river, channel, creek, bay or estuary)—

- (a) belonging to His Majesty in right of the Crown and forming part of The Crown Estate without the consent in writing of the Crown Estate Commissioners;
- (b) belonging to His Majesty in right of the Crown and not forming part of The Crown Estate without the consent in writing of the government department having the management of that land; or
- (c) belonging to a government department or held in trust for His Majesty for the purposes of a government department without the consent in writing of that government department.

(2) A consent under paragraph (1) may be given unconditionally or subject to terms and conditions; and is deemed to have been given in writing where it is sent electronically.

Protective provisions

11. Schedule 3 (protective provisions) has effect.

Certification of documents and plans, etc.

12.—(1) The undertaker must, as soon as practicable after the making of this Order, submit to the Secretary of State copies of all of the documents listed in Schedule 8 (documents to be certified) for certification that they are true copies of the documents referred to in this Order.

(2) A plan or document so certified is admissible in any proceedings as evidence of the contents of the document of which it is a copy.

Service of notices

13.—(1) A notice or other document required or authorised to be served for the purposes of this Order may be served—

(a) Section 105(2) was substituted by section 69(3) of the Energy Act 2008 (c. 32).

- (a) by post;
- (b) by delivering it to the person on whom it is to be served or to whom it is to be given or supplied; or
- (c) with the consent of the recipient and subject to paragraphs (5) to (7) by electronic transmission.

(2) Where the person on whom a notice or other document to be served for the purposes of this Order is a body corporate, the notice or document is duly served if it is served on the secretary or clerk of that body.

(3) For the purposes of section 7 (references to service by post) of the Interpretation Act 1978^(a) as it applies for the purposes of this article, the proper address of any person in relation to the service on that person of a notice or document under paragraph (1) is, if that person has given an address for service, that address, and otherwise—

- (a) in the case of the secretary or clerk of a body corporate, the registered or principal office of that body; and
- (b) in any other case, the last known address of that person at the time of service.

(4) Where a notice or other document required to be served or sent for the purposes of this Order is served or sent by electronic transmission the requirement is to be taken to be fulfilled only where—

- (a) the recipient of the notice or other document to be transmitted has given consent to the use of electronic transmission in writing or by electronic transmission;
- (b) the notice or document is capable of being accessed by the recipient;
- (c) the notice or document is legible in all material respects; and
- (d) the notice or document is in a form sufficiently permanent to be used for subsequent reference.

(5) Where the recipient of a notice or other document served or sent by electronic transmission notifies the sender within seven days of receipt that the recipient requires a paper copy of all or part of that notice or other document the sender must provide such a copy as soon as reasonably practicable.

(6) Any consent to the use of electronic communication given by a person may be revoked by that person in accordance with paragraph (7).

(7) Where a person is no longer willing to accept the use of electronic transmission for any of the purposes of this Order—

- (a) that person must give notice in writing or by electronic transmission revoking any consent given by that person for that purpose; and
- (b) such revocation is final and takes effect on a date specified by the person in the notice but that date must not be less than seven days after the date on which the notice is given.

(8) This article does not exclude the employment of any method of service not expressly provided for by it.

(9) In this article “legible in all material respects” means that the information contained in the notice or document is available to that person to no lesser extent than it would be if served, given or supplied by means of a notice or document in printed form.

Requirements, appeals, etc.

14. Schedule 4 (approval of matters specified in requirements) has effect in relation to all agreements or approvals granted, refused or withheld in relation to requirements included in Schedule 2 (requirements) to this Order.

(a) 1978 c. 30.

Arbitration

15.—(1) Subject to article 9 (saving provisions for Trinity House), any difference under any provision of this Order, unless otherwise provided for, must be referred to and settled by arbitration in accordance with the rules at Schedule 5 (arbitration rules) to this Order, by a single arbitrator to be agreed between the parties or, failing agreement, to be appointed on the application of either party (after giving written notice to the other) by the Secretary of State.

(2) For the avoidance of doubt, any matter for which the consent or approval of the Secretary of State or the MMO is required under any provision of this Order shall not be subject to arbitration.

Approvals

16.—(1) Where, under any of the requirements set out in Schedule 2, any condition in Part 2 of Schedule 6, or any provision in Schedules 3, 6 or 7, the approval (which shall include any confirmation or agreement) or notification of or to the Secretary of State or another organisation or body is required, that approval or notification must be given in writing.

(2) With respect to any approval which requires the authorised project to be carried out in accordance with the details approved by the Secretary of State or another organisation or body, the approved details must be carried out as approved unless an amendment or variation is previously agreed by the Secretary of State or that other organisation or body in writing in accordance with paragraph (3).

(3) Any amendments to or variations of the approved details must be in accordance with the principles and assessments set out in the environmental statement. Such agreement may only be given where it has been demonstrated to the satisfaction of the Secretary of State or that other organisation or body that the amendment to the approved detail is unlikely to give rise to any materially new or materially different environmental effects from those assessed in the environmental statement.

(4) The approved details must be taken to include any amendments that have subsequently been approved by the Secretary of State or that other organisation or body.

(5) Where any approval or notification is required in writing this includes by electronic transmission.

Modification of the 2016 Order

17. Article 223 of the 2016 Order^(a) is modified so as to read for the purposes of this Order only as if there were inserted after paragraph (1)(b)—

“(c) or which is situated in waters outside of the territorial sea designated as the Renewable Energy Zone by section 84(4) of the 2004 Act^(b).”.

Compensation measures

18.—(1) Schedule 7 (compensation measures) has effect.

(2) If before the coming into force of this Order the undertaker or any other person has taken any steps that were intended to be steps towards compliance with any provision of Schedule 7, those steps may be taken into account for the purpose of determining compliance with that provision if they would have been valid steps for that purpose had they been taken after this Order came into force.

Guarantees in respect of payment of compensation

19.—(1) The undertaker must not commence development unless it has put in place either—

^(a) S.I. 2016/765;

^(b) Section 84(4) was substituted by Schedule 4(1) para. 4(2) of the Marine and Coastal Access Act 2009 (c. 23).

- (a) a guarantee and the amount of that guarantee approved by the Secretary of State in respect of the liabilities of the undertaker to pay compensation pursuant to the provisions of schedule 3; or
- (b) an alternative form of security and the amount of that security for that purpose approved by the Secretary of State in respect of the liabilities of the undertaker to pay compensation pursuant to the provisions of schedule 3.

(2) A guarantee or alternative form of security given in respect of any liability of the undertaker to pay compensation pursuant to the provisions referred to in paragraph (1) is to be treated as enforceable against the guarantor or person providing the alternative form of security by any person to whom such compensation is payable and must be in such a form as to be capable of enforcement by such a person.

(3) Nothing in this article requires a guarantee or alternative form of security to be in place after the Secretary of State has confirmed pursuant to paragraph 6 of part 2 of schedule 3 and paragraph 7 of part 3 of schedule 3 that the Calder Field Facilities and the CPC have been decommissioned.

(4) Nothing in this article requires a guarantee or alternative form of security to be put in place by the undertaker where—

- (a) the undertaker provides the Secretary of State with financial information sufficient to demonstrate that it has appropriate funding in place without a guarantee or alternative form of security to meet any liability to pay compensation under this Order in respect of the exercise of the relevant powers in paragraph (1); and
- (b) The Secretary of State provides confirmation that no such guarantee is required.

Signed by authority of the Secretary of State for [Energy Security and Net Zero]

Date

Signed
Title
Department

SCHEDULE 1

Authorised Project

Articles 3 and 4

PART 1

Authorised Development

1. A nationally significant infrastructure project as defined in sections 14 (nationally significant infrastructure projects: general) and 15 (generating stations) of the 2008 Act located in the east Irish Sea approximately 30 kilometres from the coast of Lancashire being an offshore wind turbine generating station with electrical output capacity of over 100MW comprising—

Work No. 1:

- (a) up to 35 wind turbine generators each fixed to the seabed by a foundation; and
- (b) a network of subsea inter-array cables between the wind turbine generators and between the wind turbine generators and the offshore substation platforms forming part of Work No. 2 including cable crossings and cable protection;

and associated development within the meaning of section 115(2) (development for which development consent may be granted) of the 2008 Act comprising—

Work No. 2:

- (a) one or two offshore substation platforms each fixed to the seabed by a foundation; and
- (b) a network of subsea platform link cables including cable crossings and cable protection;

and Work No. 1 and Work No. 2 are to be constructed seaward of MHWS within the area delineated by the coordinates shown on the offshore order limits and grid coordinates plan and listed in Table 1 below—

Table 1

<i>Point</i>	<i>Latitude</i>	<i>Longitude</i>
1	53° 50' 11.03673656" N	003° 36' 31.65915051" W
2	53° 49' 41.72634557" N	003° 34' 15.69323747" W
3	53° 49' 45.14948499" N	003° 29' 48.00160838" W
4	53° 45' 16.81576507" N	003° 29' 38.45882862" W
5	53° 45' 00.78002400" N	003° 36' 04.79995593" W
6	53° 46' 45.95836718" N	003° 40' 53.89383116" W

and in connection with the authorised development within Work No. 1 and Work No. 2 and to the extent that they do not otherwise form part of any such work, further associated development within the meaning of section 115(2) (development for which development consent may be granted) of the 2008 Act comprising such other works as may be necessary or expedient for the purposes of or in connection with the relevant part of the authorised project and which fall within the scope of the works assessed by the environmental statement, including—

- (a) scour protection around the foundations of the offshore structures;
- (b) cable protection measures;
- (c) the removal of material from the seabed and the disposal of inert material of natural origin within the Order limits produced during seabed preparation for and installation of foundations and cables (including sandwave clearance and seabed levelling) and boulder clearance;
- (d) removal of out of service cables and static fishing equipment; and

- (e) disposal of drill arisings in connection with any foundation drilling up to a total of 55,865 m³.

PART 2

Ancillary works

1. Works within the Order limits which fall within the scope of the works assessed by the environmental statement comprising—

- (a) moorings or other means of accommodating vessels in the construction or maintenance of the authorised project; and
- (b) marking buoys, beacons, fenders and other navigational warning or ship impact protection works.

SCHEDULE 2

Article 3

Requirements

Time limits

1.—The authorised project must commence no later than the expiration of five years beginning with the date this Order comes into force.

Design parameters

2.—(1) The wind turbine generators to be constructed and operated as part of the authorised project must be located within the area shown on the offshore works plan.

(2) No part of any wind turbine generator to be constructed as part of the authorised project shall oversail or extend beyond the Order limits.

(3) No part of any wind turbine generator or offshore substation platform to be constructed as part of the authorised project shall be located within 7.5km of a line between 53° 48.8' N 3°23.8' W and 53° 52.65' N 3°23.8' W.

(4) The authorised project must be constructed in accordance with the parameters set out in Table 2.

Table 2

<i>Parameter</i>	<i>Value</i>
Maximum number of wind turbine generators	35
Maximum total rotor swept area (m ²)	1,858,252
Maximum height of wind turbine generators when measured from HAT to the tip of the vertical blade (m)	310
Maximum rotor diameter of each wind turbine generator (m)	280
Minimum distance from HAT to the lowest point of the rotating blade for each turbine (m)	25
Minimum intra-row distance (between wind turbine generators in a row of wind turbine generators) (m)	1,060
Minimum inter-row distance (between rows of wind turbine generators) (m)	1,410
Maximum diameter of monopiles for wind turbine generators on monopile foundations (m)	12
Maximum diameter of piles for wind turbine generators on multi-legged jackets with piling foundations (m)	3
Maximum diameter of gravity base at the seabed for wind turbine	65

generators on gravity base foundations (m)	
Maximum diameter of suction buckets for wind turbine generators on multi-legged jackets with suction bucket foundations (m)	20
Maximum diameter of monopiles for offshore substation platform monopile foundations (m)	12
Maximum diameter of piles for offshore substation platforms on multi-legged jackets with piling foundations (m)	3
Maximum diameter of gravity base at the seabed for offshore substation platforms on gravity base foundations (m)	65
Maximum diameter of suction buckets for offshore substation platforms on multi-legged jackets with suction bucket foundations (m)	20
Maximum total seabed footprint of wind turbine generators (including scour protection) (m ²)	248,080
Maximum number of offshore substation platforms	2
Maximum dimensions of offshore substation platforms (excluding towers, helipads, masts, cranes and lightning protection):	
(a) Height when measured from HAT (m)	50
(b) Length (m)	50
(c) Width (m)	50
Maximum height when measured from HAT of offshore substation platforms (including helipads and lightning protection) (m)	70
Maximum total seabed footprint area for offshore substation platform foundations (including scour protection) (m ²)	14,176
Maximum total length of cables (inter-array cables and platform link cables) (km)	80
Maximum number of cable crossings	15
Maximum volume of natural material for disposal (m ³)	1,416,463
Maximum total footprint of scour protection (m ²) (exclusive of foundations for wind turbine generators and offshore substation platforms)	139,490
Maximum total volume of scour protection for wind turbine generators and offshore substation platforms (m ³)	278,980
Maximum footprint of cable protection (m ²) (including cable protection, entries to offshore substation platforms and wind turbine generators and cable crossings)	216,250
Maximum volume of cable protection (m ³) (including cable protection, entries to offshore substation platforms and wind turbine generators and cable crossings)	259,700
Maximum hammer energy (kilojoules or kJ) employed during installation of pin piles	2,500
Maximum hammer energy (kilojoules or kJ) employed during installation of monopile foundations	6,600

(5) The wind turbine generators to be constructed or operated as part of the authorised project must have the same height and rotor diameter, unless otherwise agreed by the Secretary of State.

Aviation safety

3.—(1) The undertaker must exhibit such lights, with such shape, colour and character and at such times as are required by the 2016 Order or determined necessary for aviation safety in consultation with the Defence Infrastructure Organisation Safeguarding and as directed by the Civil Aviation Authority. Lighting installed specifically to meet Ministry of Defence aviation safety requirements must remain operational for the lifetime of the authorised project unless otherwise agreed with the Ministry of Defence.

(2) The undertaker must notify the Defence Infrastructure Organisation Safeguarding, at least 14 days prior to the commencement of the authorised project, of the following—

- (a) the date of the commencement of construction of the authorised project;
- (b) the date any wind turbine generators are anticipated to be brought into use;
- (c) the latitude, longitude and maximum height of any construction equipment with a height of 50m or greater (above mean sea level) to be used;
- (d) the maximum height of any wind turbine generator, meteorological mast and offshore electrical platform to be constructed;
- (e) the latitude and longitude of each wind turbine generator, meteorological mast and offshore electrical platform to be constructed; and

the Defence Infrastructure Organisation Safeguarding must be notified of any changes to the information supplied under this paragraph and of the completion of the construction of the authorised project.

(3) The lights installed in accordance with paragraph (1) shall be operated at the lowest permissible lighting intensity level.

Great Dun Fell, Lowther Hill and St Annes Primary Surveillance Radars

4.—(1) No part of any wind turbine generator (excluding foundations) shall be erected as part of the authorised development until a primary radar mitigation scheme agreed in advance with the operator has been submitted to and approved by the Secretary of State in order to avoid the impact of the authorised development on the primary radars of the operator located at Great Dun Fell, Lowther Hill and St Annes and associated air traffic management operations.

(2) No part of any wind turbine generator (excluding foundations) shall be erected until the approved primary radar mitigation scheme has been implemented and then shall thereafter be operated fully in accordance with such approved scheme.

(3) For the purposes of this requirement—

- (a) “operator” means NATS (En Route) plc, incorporated under the Companies Act 2006 (4129273) whose registered office is 4000 Parkway, Whiteley, Fareham, Hants PO15 7FL or such other organisation licensed from time to time under sections 5 and 6 of the Transport Act 2000^(a) to provide air traffic services to the relevant managed area (within the meaning of section 40 of that Act); and
- (b) “primary radar mitigation scheme” or “scheme” means a detailed scheme agreed with the operator which sets out the measures to be taken to avoid at all times the impact of the authorised development on the Great Dun Fell, Lowther Hill and St Annes primary radars and air traffic management operations of the operator.

Operation of Blackpool Airport

5.—(1) No part of any wind turbine generator or offshore substation platform (excluding foundations) shall be erected as part of the authorised development until the Secretary of State, having consulted with the operator and the CAA, has confirmed that it is satisfied that—

- (a) appropriate mitigation can be implemented and maintained throughout the lifetime of the authorised development; and
- (b) appropriate arrangements have been put in place with the operator to ensure that such appropriate mitigation is implemented prior to construction of any wind turbine generator or offshore substation platform (excluding foundations) and thereafter maintained.

(2) For the purposes of this requirement—

(a) 2000 c. 38.

- (a) “appropriate mitigation” means appropriate mitigation measures required to prevent or remove any adverse impacts which the authorised development will have on the ability of the operator to provide safe airport operational and air traffic services (including but not limited to any adverse impacts on instrument flight procedures (including minimum sector altitudes), very high frequency radio and direction finding communication systems) for Blackpool Airport;
- (b) “approved mitigation” means the appropriate mitigation approved by the Secretary of State in consultation with the CAA and the operator in accordance with sub-paragraph (1); and
- (c) “operator” means Blackpool Airport Operations Limited (incorporated in England and Wales with company number 09307995 and whose registered office is Number One Bickerstaffe Square, Talbot Road, Blackpool FY1 3AH), or any successor as holder of a licence under the Commission Regulation (EU) No. 139/2014 (or any successor regulation) from the CAA to operate Blackpool Airport;

(3) The undertaker shall thereafter comply with all obligations contained within the approved mitigation throughout the lifetime of the authorised development for as long as any above waterline structures forming part of the authorised development remain in situ.

Operation of Walney Aerodrome

6.—(1) No part of any wind turbine generator or any offshore substation platform shall be erected as part of the authorised development until—

- (a) an ATS mitigation scheme has been submitted to and approved by the Secretary of State, in consultation with the CAA and the operator; and
- (b) the Secretary of State, following consultation with the CAA and the operator, has confirmed that it is satisfied that the approved ATS mitigation scheme has been implemented by the undertaker in accordance with sub-paragraph (4)(a).

(2) For the purposes of this requirement—

- (a) “approved ATS mitigation scheme” means the ATS mitigation scheme as approved by the Secretary of State in accordance with sub-paragraph (1)(a);
- (b) “ATS mitigation scheme” means a scheme which is designed to prevent or remove any adverse impacts arising from the authorised development on the operation of Walney Aerodrome, including but not limited to—
 - (i) the Aerodrome’s ability to provide and deliver, on an uninterrupted basis—
 - (aa) national sovereign defence capabilities;
 - (bb) safe airport operational and air traffic services that are fit for purpose for both civil and military aircraft operations; and
 - (cc) any other operational requirements which are identified by the operator; and
 - (ii) the Aerodrome’s IFP, MSA and VHF communication systems; and
- (c) “operator” means BAE Systems Marine Limited (incorporated in England and Wales with company number 00229770, whose registered office is at Victory Point, Lyon Way, Frimley, Camberley, Surrey GU16 7EX) or such other organisation as is licensed from time to time under sections 5 and 6 of the Transport Act 2000(a) to provide air traffic services at Walney Aerodrome or any organisation employed by BAE Systems Marine Limited to provide an air traffic service at Walney Aerodrome.

(3) The approved ATS mitigation scheme must remain in place and be complied with for the lifetime of the authorised development (including the period during which the authorised development is being decommissioned in accordance with the decommissioning programme approved pursuant to requirement 10).

(a) 2000 c. 38.

(4) The undertaker shall at its sole cost—

- (a) implement the approved ATS mitigation scheme prior to the erection of any part of any wind turbine generator or any offshore substation platform forming part of the authorised development;
- (b) thereafter maintain, repair and replace, including without limitation resolving any failure (howsoever caused) of, the approved ATS mitigation scheme throughout the lifetime of the authorised development (including the period during which the authorised development is being decommissioned in accordance with the decommissioning programme approved pursuant to requirement 10); and
- (c) in the event of any amendment being made to the authorised development which gives rise to adverse impacts on the operation of Walney Aerodrome which are new or different to those identified by the environmental statement, work with the CAA and the operator in good faith to implement and thereafter maintain any additional mitigation measures required to prevent or remove such adverse impacts throughout the lifetime of the authorised development (including the period during which the authorised development is being decommissioned in accordance with the decommissioning programme approved pursuant to requirement 10).

Operation of Warton Aerodrome

7.—(1) No part of any wind turbine generator or any offshore substation platform shall be erected as part of the authorised development until—

- (a) an ATS mitigation scheme has been submitted to and approved by the Secretary of State, in consultation with the CAA and the operator; and
- (b) the Secretary of State, following consultation with the CAA and the operator, has confirmed that it is satisfied that the approved ATS mitigation scheme has been implemented by the undertaker in accordance with sub-paragraph (4)(a).

(2) For the purposes of this requirement—

- (a) “approved ATS mitigation scheme” means the ATS mitigation scheme as approved by the Secretary of State in accordance with sub-paragraph (1)(a);
- (b) “ATS mitigation scheme” means a scheme which is designed to prevent or remove any adverse impacts arising from the authorised development on the operation of Warton Aerodrome, including but not limited to—
 - (i) the Aerodrome’s ability to provide and deliver, on an uninterrupted basis—
 - (aa) national sovereign defence capabilities;
 - (bb) safe airport operational and air traffic services that are fit for purpose for both civil and military aircraft operations; and
 - (cc) any other operational requirements which are identified by the operator; and
 - (ii) the Aerodrome’s IFP, MSA, DF, UHF and VHF communication systems; and
- (c) “operator” means BAE Systems (Operations) Limited (incorporated in England and Wales with company number 01996687, whose registered office is at Victory Point, Lyon Way, Frimley, Camberley, Surrey GU16 7EX) or such other organisation as is licensed from time to time under sections 5 and 6 of the Transport Act 2000^(a) to provide air traffic services at Warton Aerodrome or any organisation employed by BAE Systems (Operations) Limited to provide an air traffic service at Warton Aerodrome.

(3) The approved ATS mitigation scheme must remain in place and be complied with for the lifetime of the authorised development (including the period during which the authorised development is being decommissioned in accordance with the decommissioning programme approved pursuant to requirement 10).

(a) 2000 c. 38.

(4) The undertaker shall at its sole cost—

- (a) implement the approved ATS mitigation scheme prior to the erection of any part of any wind turbine generator or any offshore substation platform forming part of the authorised development;
- (b) thereafter maintain, repair and replace, including without limitation resolving any failure (howsoever caused) of, the approved ATS mitigation scheme throughout the lifetime of the authorised development (including the period during which the authorised development is being decommissioned in accordance with the decommissioning programme approved pursuant to requirement 10); and
- (c) in the event of any amendment being made to the authorised development which gives rise to adverse impacts on the operation of Warton Aerodrome which are new or different to those identified by the environmental statement, work with the CAA and the operator in good faith to implement and thereafter maintain any additional mitigation measures required to prevent or remove such adverse impacts throughout the lifetime of the authorised development (including the period during which the authorised development is being decommissioned in accordance with the decommissioning programme approved pursuant to requirement 10).

Warton Aerodrome Primary Surveillance Radar

8.—(1) No part of any wind turbine generator shall be erected as part of the authorised development until a radar mitigation scheme has been submitted to and approved by the Secretary of State, in consultation with the Ministry of Defence and the operator.

(2) For the purposes of this requirement—

- (a) “approved radar mitigation scheme” means the radar mitigation scheme as approved by the Secretary of State in accordance with sub-paragraph (1);
- (b) “Ministry of Defence” means the Ministry of Defence as represented by Defence Infrastructure Organisation – Safeguarding, St George’s House, DIO Head Office, DMS Whittington, Lichfield, Staffordshire, WS14 9PY or any successor body;
- (c) “operator” means BAE Systems (Operations) Limited (incorporated in England and Wales with company number 01996687, whose registered office is at Victory Point, Lyon Way, Frimley, Camberley, Surrey GU16 7EX) or such other organisation as is licensed from time to time under sections 5 and 6 of the Transport Act 2000(a) to provide air traffic services at Warton Aerodrome or any organisation employed by BAE Systems (Operations) Limited to provide an air traffic service at Warton Aerodrome;
- (d) “PSR” means the primary surveillance radar at Warton Aerodrome or any upgrade thereto or replacement thereof;
- (e) “PSR air traffic control operations” means the air traffic control operations, including both civil and military aircraft operations, of the Ministry of Defence or the operator (or both) which are reliant upon the PSR; and
- (f) “radar mitigation scheme” means a scheme designed to prevent or remove any adverse impacts arising from the authorised development upon the operation of the PSR or the PSR air traffic control operations.

(3) No wind turbine generator erected as part of the authorised development shall be permitted to rotate its rotor blades about its horizontal axis other than for the purpose of testing the proposed mitigation solution identified in the approved radar mitigation scheme until the Secretary of State, following consultation with the Ministry of Defence and the operator, has confirmed that it is satisfied that—

(a) 2000 c. 38.

- (a) the proposed mitigation solution has been subject to technical and operational assessment and, in particular, has undergone ‘in-situ’ testing in line with the requirements of (and for the time period(s) specified in) the approved radar mitigation scheme;
 - (b) the performance criteria required to be met by the proposed mitigation solution, as specified in the approved radar mitigation scheme, have been met; and
 - (c) the approved radar mitigation scheme has been implemented by the undertaker in accordance with sub-paragraph (5)(a).
- (4) The approved radar mitigation scheme must remain in place and be complied with for so long as any of the wind turbine generators erected as part of the authorised development are operational and provided that the PSR remains an operational requirement of the Ministry of Defence or the operator (or both).
- (5) The undertaker shall at its sole cost—
- (a) implement the approved radar mitigation scheme prior to any wind turbine generator erected as part of the authorised development being permitted to rotate its rotor blades about its horizontal axis;
 - (b) thereafter maintain, repair and replace, including without limitation resolving any failure (howsoever caused) of, the approved radar mitigation scheme for so long as any of the wind turbine generators erected as part of the authorised development are operational and provided that the PSR remains an operational requirement of the Ministry of Defence or the operator (or both); and
 - (c) in the event of any amendment being made to the authorised development which gives rise to new or different adverse impacts to those identified in the environmental statement on the operation of the PSR or the PSR air traffic control operations (or both), work with the Ministry of Defence and the operator in good faith to implement and thereafter maintain any additional mitigation measures required to prevent or remove such adverse impacts for so long as any of the wind turbine generators erected as part of the authorised development are operational and provided that the PSR remains an operational requirement of the Ministry of Defence or the operator (or both).

Air traffic services at Isle of Man Airport

9.—(1) No part of any wind turbine generator (excluding foundations) shall be erected as part of the authorised development until the Secretary of State, having consulted with the operator and the Isle of Man Civil Aviation Administration, confirms that either—

- (a) no mitigation is required in respect of the authorised development; or
 - (b) should mitigation be required in respect of the authorised development—
 - (i) an appropriate mitigation scheme can be implemented and maintained for the lifetime of the authorised development; and
 - (ii) a mitigation agreement has been offered to the operator to ensure that the appropriate mitigation can be implemented.
- (2) For the purposes of this requirement—
- (a) “appropriate mitigation scheme” means a scheme submitted to the operator which sets out measures taken to prevent or remove any adverse impacts of the authorised development on the Isle of Man Primary Surveillance Radar and air traffic management operations and the operator’s ability to provide safe and efficient air traffic services for Isle of Man Airport during the life of the authorised development;
 - (b) “approved mitigation” means an appropriate mitigation scheme approved in accordance with sub-paragraph (1)(b); and
 - (c) “operator” means Isle of Man Airport or such other organisation as is licensed from time to time to provide air traffic services for Isle of Man Airport.

(3) The undertaker shall thereafter comply with all obligations contained within the approved mitigation for the lifetime of the authorised development.

Decommissioning

10. No part of the authorised development may commence until a written decommissioning programme in compliance with any notice served upon the undertaker by the Secretary of State pursuant to section 105(2) (requirement to prepare decommissioning programmes) of the 2004 Act has been submitted to the Secretary of State for approval.

Port Access and Transport Plan

11.—(1) Where a port in England or Wales is to be used for the transport over land of wind turbine generators, offshore substation platforms or foundations (including scour protection) in connection with the construction, operation or maintenance of the authorised development, no part of the authorised development may commence until a port access and transport plan (which accords with the outline port access and transport plan) for the onshore port-related traffic to and from the port or ports and relating to that part of the authorised development has been submitted to and approved by the relevant highway authority in consultation with the relevant planning authority.

(2) Sub-paragraph (1) does not apply if the relevant highway authority confirms, after consultation with the relevant planning authority, that no port access and transport plan is required for that part of the authorised development.

(3) The port access and transport plan must be implemented as approved at all times specified within the port access and transport plan during the construction of the authorised development.

(4) For the purposes of this requirement, “relevant planning authority” and “relevant highway authority” mean the planning or highway authority or authorities in whose area the relevant port is located.

Skills and Employment Plan

12.—(1) No part of the authorised development may commence until a skills and employment plan has been submitted to and approved by the relevant authorities.

(2) The skills and employment plan must be in accordance with the outline skills and employment plan and must be implemented as approved for the lifetime of the authorised development.

(3) For the purposes of this requirement, the “relevant authorities” means—

- (a) any planning authority in whose area a marshalling port or operation and maintenance base used in connection with the authorised development is located.

SCHEDULE 3

Article 11

Protective provisions

PART 1

For the protection of offshore cables

1. The provisions of this Part have effect unless otherwise agreed between the undertaker and the Company in question.

2.—(1) In this Part—

“cables” means the whole or any part of the Lanis-1 cable or the Hibernia A cable;

“Company” means—

- (a) EXA Infrastructure Express UK Limited (company number 08257476) and having its registered address at 5th Floor, 40 Strand, London, United Kingdom, WC2N 5RW in relation to the Hibernia A cable; and
- (b) Vodafone Group PLC (company number 01833679) and having its registered address at Vodafone House, The Connection, Newbury, Berkshire, RG14 2FN in relation to the Lanis-1 cable;

and any references to a Company includes its successors in title in respect of any protected property.

“construction” includes execution, placing and altering; and cognate expressions must be construed accordingly;

“Lanis-1 cable” means the submarine telecommunications cable laid between the United Kingdom and the Isle of Man;

“Hibernia A cable” means the submarine telecommunications cable laid between the United Kingdom and Canada;

“plans” includes sections, drawings, calculations, methods of construction, particulars and specifications;

“protected property” means the cables—

- (a) any part of which is situated within the Order limits for the authorised development; and
- (b) in respect of which a Company has an interest for the time being;

“protective works” has the meaning given in paragraph 10; and

“works” means Work No. 1 and Work No. 2.

3. No wind turbine generators or offshore substation platforms shall be erected within 500 metres of the protected property unless otherwise agreed between the Company and the undertaker.

4. Despite anything in this Order or shown on the offshore works plan, the undertaker must not pursuant to the powers conferred by this Order appropriate and remove any protected property otherwise than by agreement with the Company.

5. Despite anything in this Order, except in the case of any part of the protected property that the Company certifies in writing is permanently disused, the undertaker must not exercise the powers conferred by this Order to relocate any protected property until suitable alternative facilities have been provided by the undertaker and are available for use to the reasonable satisfaction of the Company.

6. The undertaker must use reasonable endeavours—

- (a) in exercising any of the powers conferred by this Order to avoid or (failing avoidance) to minimise any damage or disruption to the protected property; and
- (b) without limiting sub-paragraph (a), to ensure that the works do not at any time fall into such a condition as to compromise the integrity or operation of the protected property.

7. Not less than four calendar months before commencing construction of the works, the undertaker must furnish to the Company a programme for the works proposed and a general indication of the nature and location of the works and, if within 28 days after receipt by a Company of that programme and general indication the Company gives notice to the undertaker that any part of the authorised development indicated in the programme may in any way affect protected property, paragraphs 8 and 9 apply with respect to that part of those works.

8. On giving any notice to the undertaker under paragraph 7, the Company must furnish existing drawings showing to the best of its knowledge the position and depth of the relevant part of the protected property.

9. Not less than two calendar months before commencing construction of any part of the authorised development that may significantly affect the protected property, the undertaker must

furnish to the Company detailed plans and specifications of the relevant part of the authorised development and must have due regard to any representations made by the Company relating to such plans or to the programme for the works and make reasonable changes required to avoid risk of harm to the protected property by the construction of the relevant part of the authorised development.

10. At any time within one calendar month after the receipt by the Company of the plans referred to in paragraph 9 the Company may by notice to the undertaker specify any reasonable temporary or permanent works or measures (the “protective works”) which in its reasonable opinion should be carried out or taken by the undertaker before the commencement of or during the construction of the works in order to ensure the stability of the protected property (shown on the drawings furnished by the Company under paragraph 8) or to protect them from injury and such protective works must be constructed by the undertaker at its own expense and under the inspection (if any) of the Company.

11. Except in the case of protective works that the Company has informed the undertaker in writing may be carried out during the construction of the works, the undertaker must not commence the construction of any works within 50 metres of, or which may in any way affect, the protected property until the protective works relating to the works have been completed to the reasonable satisfaction of the Company.

12. In the case of protective works of which the Company has informed the undertaker in writing as mentioned in paragraph 11, the undertaker must comply with all reasonable requirements of the Company arising from its inspection under paragraph 10 as promptly as practicable after the undertaker has been notified of such requirements.

13. Except in an emergency (when it must give such notice as may be reasonably practicable), the undertaker must give the Company not less than 28 days’ notice of its intention to carry out any works for the repair or maintenance of the works in so far as such works may affect or interfere with the protected property.

14. The undertaker must pay to the Company the reasonable expenses properly incurred by the Company in or in connection with the removal and relaying or replacing of any part of the protected property, including the provision, laying down or placing of any alternative facilities.

15. The undertaker must pay to the Company the reasonable expenses properly incurred by the Company in or in connection with the preparation of drawings or notices referred to in paragraph 8 or 9 and by the Company in the watching and inspecting of any protective works relating to protected property.

16. This Part does not apply in relation to any protected property laid by or for the use of the Company after this Order comes into force.

17. Nothing in this Part affects any enactment or any regulations made under any enactment or any agreement regulating the relations between the undertaker and the Company in respect of any protected property laid within the Order limits for the authorised development in force on the date on which this Order comes into force.

PART 2

For the protection of the licensee and duty holder of the Calder Field

Application

1. For the protection of the licensee and the duty holder from time to time of the Calder Field the provisions of this Part of this Schedule, unless otherwise agreed between the undertaker and the licensee or the duty holder as the case may be, shall have effect in accordance with paragraphs 3 to 6.

Interpretation

2. In this Part of this Schedule—

“1998 Act” means the Petroleum Act 1998(a);

“additional costs” means any costs incurred by the licensee in carrying out the licensee’s works or the duty holder’s operations, and relating to any of the following—

- (a) impaired helicopter access to the extent such helicopter operations can be reasonably demonstrated to have been necessary for the operation and maintenance or decommissioning of the Calder Field or the Calder Field Facilities;
- (b) only to the extent not included in the calculation of costs relating to sub-paragraph (a), any use of vessels or alternative arrangements implemented to mitigate the likely extent of such impaired helicopter access;; or
- (c) impaired helicopter access to any drilling unit or rig being utilised for the purposes of operation, maintenance or decommissioning of the Calder Field or the Calder Field Facilities and any associated support vessels and service personnel resulting in such unit, rig, support vessel or service personnel being required for a longer period of time;

but in each case only to the extent that:

- (i) such costs have been incurred by the licensee or the duty holder as a result of the authorised development;
- (ii) such costs have been reasonably and properly incurred by the licensee or the duty holder;
- (iii) the licensee or the duty holder provides reasonably documented evidence of such costs;
- (iv) the licensee, the duty holder and each relevant contractor, sub-contractor or agent have at all times used reasonable endeavours to minimise and mitigate such costs;

such costs are not consequential loss; “cable” means the power and telecommunications cables connecting the Calder Platform to CPC ;

“Calder Platform” means the normally unattended, minimum facilities wellhead platform located in the United Kingdom Continental Shelf block 110/7a D;

“cessation of production” or “COP” means the date on which hydrocarbon production permanently ceases;

“coexistence agreement” means an agreement or agreements entered on reasonable terms between the undertaker and the licensee or the undertaker and the duty holder in respect of the authorised development and the licensee’s or the duty holder’s works to reconcile and protect the interests of the parties as are known at the time;

“consequential loss” means—

- (a) any consequential or indirect loss under English law;
- (b) the following irrespective of whether direct, indirect or consequential loss—
 - (i) loss or damage arising out of any delay, postponement, interruption or loss of production of hydrocarbons, any inability to produce, process or deliver hydrocarbons or any loss of or anticipated loss of use, profit or revenue;
 - (ii) loss or damage incurred or liquidated or pre-estimated damages of any kind whatsoever borne or payable under any contract for sale, exchange, transportation, processing, storage or other disposal of hydrocarbons;
 - (iii) losses associated with business interruption including the costs of overheads incurred during business interruption;
 - (iv) loss of bargain, contract, expectation or opportunity; or

(a) 1998 c. 17.

- (v) any other loss or anticipated loss or damage whatsoever in the nature of or consequential upon the foregoing,

howsoever caused or arising whether under contract, by virtue of any fiduciary duty, in tort or delict (including negligence), as a consequence of breach of any duty (statutory or otherwise) or under any other legal doctrine or principle whatsoever whether or not recoverable at common law or in equity and whether or not foreseeable at the date stated in article 1 (citation and commencement) of this Order;

“duty holder” means the duty holder for time to time of the Calder Platform, which at the date stated in article 1 (citation and commencement) of this order is Spirit Energy Production Limited;

“duty holder’s operations” means the operations and services provided by the duty holder to the licensee in accordance with and pursuant to an operating agreement between the duty holder and the licensee;

“Harbour Energy” means Chrysaor Resources (Irish Sea) Limited, a subsidiary of Harbour Energy PLC;

“impaired helicopter access” means delays that occur in the movement of necessary personnel or materials (or both) by helicopter to or from the Calder Field Facilities (or any drilling unit or rig which is supporting the licensee’s or duty holder’s works at the Calder Field Facilities);

“interim to enduring aviation buffer change date” means the earlier of the date of cessation of production at the Calder Platform 1 January 2029 or if the undertaker has not commenced development by 1 January 2029 six months after the undertaker has given notice to the Secretary of State, the duty holder and the licensee or its intention to commence development;

“licence” means the United Kingdom Petroleum Production Licence P099;

“licensee” means the licensees from time to time of the Calder Field, which at the date stated in article 1 (citation and commencement) of this Order is Harbour Energy;

“licensee’s works” means any exploration, appraisal, development, production, maintenance, interventions or decommissioning activity in accordance with and pursuant to the licence or any statutory decommissioning plan required under the 1998 Act in relation to the Calder Field Facilities;

“ministerial statement” means the written statement given by the Secretary of State for Energy and Climate Change to the UK Parliament regarding Crown Estate Leases for Offshore Renewables Projects on 12 July 2011, or any similar supplementary or replacement policy;

“offshore substation platform” or “OSP” means Work No. 2(a) from Part 1 of Schedule to the Order but excluding foundations;

“pipeline and cable proximity area” means the area five hundred meters (500m) either side and directly above the pipeline and cable;

“pipeline” means—

- (a) the 3 inch Rivers onshore terminal to Calder chemical pipeline with pipeline reference number PL1965; and
- (b) the 24 inch Calder to Rivers onshore terminal gas pipeline with pipeline reference number PL1966

together with any associated umbilicals, plant and equipment serving those pipelines;

“relevant activities” means all development activity relating to the carrying on of the undertaker’s and licensee’s businesses within or adjacent to—

- (a) the pipeline and cable proximity area;
- (b) the WTG and OSP aviation enduring buffer zone;
- (c) the WTG and OSP marine buffer zone;
- (d) the WTG aviation interim buffer zone; or
- (e) the WTG marine corridor;

as the case may be, including (but not limited to) the preparation of development proposals, the submission of applications for statutory consents associated with those proposals and consultation in respect thereof, or the acquisition of or application for new oil or gas blocks;

“temporary surface infrastructure” means any fixed temporary infrastructure to be used in the construction, operation and maintenance, and decommissioning of the authorised development including, but not limited to, jack-up barges and buoys, but does not include temporary surface infrastructure in transit;

“wind turbine generator” or “WTG” means Work No. 1(a) from Part 1 of Schedule to the Order but excluding foundations;

“WTG and OSP aviation enduring buffer zone” means a circular area of one point nine nautical miles (1.9 nm) measured from the nearest outer extremity edge of the Calder Platform to any tip from any wind turbine generator or OSP located within the Order limits and extending vertically from mean sea level;

“WTG and OSP marine buffer zone” means an area of one point five nautical miles (1.5 nm) measured from the outer extremity edge of the Calder Platform and extending vertically from mean sea level shown;

“WTG aviation corridor” means a two nautical mile (2 nm) wide corridor by a distance of three point seven six nautical miles (3.76 nm) long angled at 220 degrees from CPC set one nautical mile (1 nm) each side of CPC;

“WTG aviation interim buffer zone” means a circular area of three point seven six nautical miles (3.76 nm) measured from the nearest outer extremity edge of the Calder Platform to any tip from any wind turbine generator located within the Order limits and extending vertically from mean sea level; and

“WTG marine corridor” means a one nautical mile (1 nm) wide corridor of clear sea space between the Calder Platform and CPC set half a nautical mile (0.5 nm) around the outer extremity edge of each of the Calder Platform and CPC.

Restriction on authorised development

3.—(1) No wind turbine generator, offshore substation platform or temporary surface infrastructure shall be erected in the pipeline and cable proximity area, the WTG and OSP marine buffer zone or the WTG marine corridor unless otherwise agreed between the licensee or the duty holder and the undertaker.

(2) In the case of temporary surface infrastructure the licensee or the duty holder may not unreasonably withhold consent where the undertaker has been reasonably requested to place temporary infrastructure in the pipeline and cable proximity area, the WTG and OSP marine buffer zone or the WTG marine corridor by a statutory consultee.

4.—(1) No wind turbine generator shall be erected in the WTG aviation interim buffer zone prior to the interim to enduring aviation buffer change date for Calder unless otherwise agreed between the licensee or the duty holder and the undertaker.

(2) No wind turbine generator or offshore substation platform shall be erected in the WTG and OSP aviation enduring buffer zone at any time unless otherwise agreed between the licensee or the duty holder and the undertaker.

5. No wind turbine generator shall be erected in the WTG aviation corridor unless otherwise agreed between the licensee or the duty holder and the undertaker.

6. The restrictions in paragraphs 3, 4 and 5 (in respect of the WTG aviation interim buffer zone, the WTG and OSP aviation enduring buffer zone, the WTG and OSP marine buffer zone, the WTG marine corridor and the WTG aviation corridor) shall cease to have effect if the Secretary of State, having consulted with the licensee, has confirmed in writing that the Calder Field Facilities have been decommissioned.

Coexistence agreement

7. Prior to the commencement of construction of the authorised development, the undertaker and the licensee and the undertaker and the duty holder shall use reasonable endeavours to enter into a coexistence agreement (which shall include provision for proximity agreements on standard UK oil and gas industry terms and arrangements for coordinating marine access and simultaneous operations).

Provision of information

8. Without prejudice to any other rights or obligations under this Part of this Schedule the licensee, the duty holder and the undertaker shall from time to time keep each other informed of relevant activities such that the licensee and the undertaker may seek to agree solutions to allow those activities to successfully co-exist as far as reasonably practicable until completion of activities required under any statutory decommissioning plan required under the 1998 Act in relation to the Calder Field Facilities.

Cooperation

9. The undertaker and the licensee must each act in good faith and use reasonable endeavours to cooperate with, and provide assistance to, each other as may be required to give effect to the provisions of this Schedule.

Compensation

10.—(1) The licensee or the duty holder shall, as soon as reasonably practicable after incurring any additional costs, serve the undertaker with an itemised invoice which details the amount payable to the licensee which compensates the licensee for incurring such additional costs.

(2) Subject to sub-paragraph (3), within 28 days of receipt of such an itemised invoice, the undertaker shall pay the licensee's costs or the duty holder's costs as the case may be detailed in such itemised invoice by electronic transfer in immediately available funds to the licensee or duty holder, to such account as is designated by the licensee or duty holder, quoting the invoice number against which payment is made.

(3) Where the amount of any sum contained in any invoice is disputed, the undisputed amount of such invoice shall be paid by the undertaker on or before the due date except in the case of fraud. Where the amount of any sum is disputed, the undertaker shall notify the licensee or the duty holder as the case may be of the amount in dispute as soon as possible and, in any event, not later than twenty eight (28) days from the date of receipt of the invoice. For a period of thirty (30) days from the date of receipt by the licensee or the duty holder as the case may be of the notification of any disputed amount, the undertaker and the licensee or duty holder shall exercise reasonable endeavours to resolve the dispute. If the disputed amount is not resolved within such thirty (30) days of receipt of the notification, the disputed amount may be referred to arbitration for determination pursuant to paragraph 12 below. If the disputed amount is ultimately resolved or determined in favour of the licensee or the duty holder, the undertaker shall pay to the licensee or duty holder as the case may be the difference between the original invoice amount already paid and the final agreed or determined amount.

11. Nothing in this Part of this Schedule shall affect any rights or obligations or assessment of compensation in accordance with the ministerial statement and any associated guidance.

Arbitration

12. Any difference arising between the undertaker and the licensee under this Part shall be referred to and settled by arbitration under article 15 (arbitration).

PART 3

For the protection of the licensee of licences P.251, P.1483 and P.153

Application

1. For the protection of the licensee from time to time of the United Kingdom Petroleum Production Licences with references P.251, P.1483 and P.153 (as the same may be assigned, amended or replaced from time to time), the provisions of this Part of this Schedule shall have effect for so long as the said licences shall remain in full force and effect, unless otherwise agreed between the undertaker and the licensee.

Interpretation

2. In this Part of this Schedule—

“1998 Act” means the Petroleum Act 1998(a);

“additional costs” means any costs incurred by the licensee in carrying out the licensee’s works, and relating to any of the following—

- (a) impaired helicopter access to the extent such helicopter operations can be reasonably demonstrated to have been necessary for the licensee’s works;
- (b) only to the extent not included in the calculation of costs relating to sub-paragraph (a), any use of vessels or alternative arrangements implemented to mitigate the likely extent of such impaired helicopter access; or
- (c) impaired helicopter access to any drilling unit or rig being utilised for the purposes of the licensee’s works and any associated support vessels and service personnel resulting in such unit, rig, support vessel or service personnel being required for a longer period of time;

but in each case only to the extent that:

- (i) such costs have been incurred by the licensee as a result of the authorised development;
- (ii) such costs have been reasonably and properly incurred by the licensee;
- (iii) the licensee provides reasonably documented evidence of such costs;
- (iv) the licensee and each relevant contractor, sub-contractor or agent have at all times used reasonable endeavours to minimise and mitigate such costs; and
- (v) such costs are not consequential loss;

“cable” means the power and telecommunications cables connecting CPC to the DP3 wells;

“Calder Platform” means the normally unattended, minimum facilities wellhead platform located in the United Kingdom Continental Shelf block 110/7a D;

“cessation of production” or “COP” means the date on which hydrocarbon production permanently ceases;

“coexistence agreement” means an agreement entered on reasonable terms between the undertaker and the licensee in respect of the authorised development and the licensee’s works to reconcile and protect the interests of the parties as are known at the time;

“consequential loss” means—

- (a) any consequential or indirect loss under English law; or
- (b) the following irrespective of whether direct, indirect or consequential loss—

(a) 1998 c. 17.

- (i) loss or damage arising out of any delay, postponement, interruption or loss of production of hydrocarbons, any inability to produce, process or deliver hydrocarbons or any loss of or anticipated loss of use, profit or revenue;
- (ii) loss or damage incurred or liquidated or pre-estimated damages of any kind whatsoever borne or payable under any contract for sale, exchange, transportation, processing, storage or other disposal of hydrocarbons;
- (iii) losses associated with business interruption including the costs of overheads incurred during business interruption;
- (iv) loss of bargain, contract, expectation or opportunity; or
- (v) any other loss or anticipated loss or damage whatsoever in the nature of or consequential upon the foregoing,

in either case (a) or (b) above howsoever caused or arising whether under contract, by virtue of any fiduciary duty, in tort or delict (including negligence), as a consequence of breach of any duty (statutory or otherwise) or under any other legal doctrine or principle whatsoever whether or not recoverable at common law or in equity and whether or not foreseeable at the date stated in article 1 (citation and commencement) of this Order;

“DP3 wells” means the wells located at the site of the decommissioned drilling production platform 3 located at CPC the coordinates of which are 53° 49’ 0.6155” N and 003° 33’ 36.1013” W;

“Harbour Energy” means Chrysaor Resources (Irish Sea) Limited, a subsidiary of Harbour Energy PLC as holder from time to time of the Harbour Energy licence;

“Harbour Energy licence” means United Kingdom Petroleum Production Licence P099 (as the same may be assigned, amended or replaced from time to time);

“impaired helicopter access” means delays that occur in the movement of necessary personnel or materials (or both) by helicopter to or from the South Morecambe Field Facilities (or any drilling unit or rig which is supporting the licensee’s works the South Morecambe Field Facilities);

“interim to enduring buffer change date” means the earlier of the date of cessation of production at CPC, 1 January 2029, or if the undertaker has not commenced development by 1 January 2029, six months after the undertaker has given notice to the Secretary of State and the licensee or its intention to commence development;

“licence” means the United Kingdom Petroleum Production Licences with references P.251, P.1483 and P.153 (as the same may be assigned, amended or replaced from time to time);

“licensee” means—

- (a) the holders from time to time of any of the licences, which at the date stated in article 1 (citation and commencement) of this Order is Spirit Energy Production UK Limited; and
- (b) the duty holder of the Calder Platform, which at the date stated in article 1 (citation and commencement) of this Order is Spirit Energy Production UK Limited;

“licensee’s works” means—

- (a) exploration, appraisal, development, production, maintenance, interventions or decommissioning activity in accordance with and pursuant to the licence or any statutory decommissioning plan required under the 1998 Act in relation to the South Morecambe Field; and
- (b) the operations and services provided by the licensee for such time as they act as the duty holder to Harbour Energy in accordance with and pursuant to an operating agreement between the licensee and Harbour Energy;

“ministerial statement” means the written statement given by the Secretary of State for Energy and Climate Change to the UK Parliament regarding Crown Estate Leases for Offshore Renewables Projects on 12 July 2011, or any similar supplementary or replacement policy;

“offshore substation platform” or “OSP” means Work No. 2(a) from Part 1 of Schedule to the Order but excluding foundations;

“pipeline and cable proximity area” means the area five hundred meters (500m) either side and directly above the pipeline and cable;

“pipeline” means—

- (a) the decommissioned 24 inch gas Morecambe DP3 to CPC pipeline with pipeline reference number PL195; and
- (b) the decommissioned 2 inch Morecambe CPC to DP3 pipeline with pipeline reference number PL205;

together with any associated umbilicals, plant and equipment serving those pipelines;

“relevant activities” means all development activity relating to the carrying on of the undertaker’s and licensee’s businesses within or adjacent to—

- (a) the pipeline and cable proximity area;
- (b) the well buffer zone
- (c) the WTG and OSP aviation enduring buffer zone;
- (d) the WTG and OSP marine buffer zone;
- (e) the WTG aviation interim buffer zone; or
- (f) the WTG marine corridor;

as the case may be, including (but not limited to) the preparation of development proposals, the submission of applications for statutory consents associated with those proposals and consultation in respect thereof, or the acquisition of or application for new oil or gas blocks;

“South Morecambe Field” means the South Morecambe offshore gas field which underlies United Kingdom Continental Shelf blocks 110/2a (including the South Morecambe portion of the block which is served by CPC, and excluding the North Morecambe portion of the block which is not served by CPC), 110/3a and 110/8a;

“South Morecambe Field Facilities” means the facilities and infrastructure pertaining to the South Morecambe Field;

“temporary surface infrastructure” means any fixed temporary infrastructure to be used in the construction, operation and maintenance, and decommissioning of the authorised development including, but not limited to, jack-up barges and buoys, but does not include temporary surface infrastructure in transit;

“well buffer zone” means a one hundred metre (100m) buffer zone around the following three legacy and relief well top-hole locations situated within the Order limits and listed in Table 3—

Table 3

<i>Well</i>	<i>UTM-X (m)</i>	<i>UTM-Y (m)</i>	<i>Latitude</i>	<i>Longitude</i>
DP3 (C1)	463127.8	5963416.1	53°49’0.6155”N	3°33’36.1013”W
110/8-2	463380.9	5964662.3	53°49’40.9985”N	3°33’22.7997”W
110/8a-C5 (Relief)	462650	5964650	53°49’40.4140”N	3°34’2.7666”W

“wind turbine generator” or “WTG” means Work No. 1(a) from Part 1 of Schedule to the Order but excluding foundations;

“WTG and OSP aviation enduring buffer zone” means two circular areas each of one point nine nautical miles (1.9 nm) measured from the nearest outer extremity edge of each of CPC and the Calder Platform to any tip from any wind turbine generator or to any OSP located within the Order limits and extending vertically from mean sea level;

“WTG and OSP marine buffer zone” means an area of one point five nautical miles (1.5 nm) measured from the outer extremity edge of CPC and extending vertically from mean sea level;

“WTG aviation corridor” means a two nautical mile (2 nm) wide corridor by a distance of three point seven six nautical miles (3.76 nm) long angled at 220 degrees from CPC set one nautical mile (1.0 nm) each side of CPC;

“WTG aviation interim buffer zone” means two circular areas each of three point seven six nautical miles (3.76 nm) measured from the nearest outer extremity edge of each of CPC and the Calder Platform to any tip from any wind turbine generator located within the Order limits and extending vertically from mean sea level; and

“WTG marine corridor” means a one nautical mile (1 nm) wide corridor of clear sea space between the Calder Platform and CPC set half a nautical mile (0.5 nm) around the outer extremity edge of each of the Calder Platform and CPC.

Restriction on authorised development

3.—(1) No wind turbine generator, offshore substation platform or temporary surface infrastructure shall be erected in the pipeline and cable proximity area, the WTG and OSP marine buffer zone or the WTG marine corridor unless otherwise agreed between the licensee and the undertaker.

(2) In the case of temporary surface infrastructure the licensee may not unreasonably withhold consent where the undertaker has been reasonably requested to place temporary infrastructure in the pipeline and cable proximity area, the WTG and OSP marine buffer zone or the WTG marine corridor by a statutory consultee.

4.—(1) No wind turbine generator shall be erected—

- (a) in the WTG aviation interim buffer zone around CPC prior to the interim to enduring aviation buffer change date; or
- (b) in the WTG aviation interim buffer zone around CPC prior to the interim to enduring aviation buffer change date,

unless otherwise agreed between the licensee and the undertaker.

(2) No wind turbine generator or offshore substation platform shall be erected in the WTG and OSP aviation enduring buffer zone at any time unless otherwise agreed between the licensee and the undertaker.

5. No wind turbine generator shall be erected in the WTG aviation corridor unless otherwise agreed between the licensee and the undertaker.

6. No wind turbine generator or offshore substation platform shall be erected in the well buffer zone unless otherwise agreed between the licensee and the undertaker.

7. The restrictions in paragraphs 3, 4 and 5 (in respect of the WTG aviation interim buffer zone, the WTG and OSP aviation enduring buffer zone, the WTG and OSP marine buffer zone, the WTG marine corridor and the WTG aviation corridor) shall cease to have effect with regard to CPC, if the Secretary of State, having consulted with the licensee, has confirmed in writing that CPC has been decommissioned.

Coexistence agreement

8. Prior to the commencement of construction of the authorised development, the undertaker and the licensee shall use reasonable endeavours to enter into a coexistence agreement (which shall include provision for proximity agreements on standard UK oil and gas industry terms and arrangements for coordinating marine access and simultaneous operations).

Provision of information

9. Without prejudice to any other rights or obligations under this Part of this Schedule the licensee and the undertaker shall from time to time keep each other informed of relevant activities such that the licensee and the undertaker may seek to agree solutions to allow those activities to successfully co-exist as far as reasonably practicable until completion of activities required under any statutory decommissioning plan required under the 1998 Act in relation to the licences.

Cooperation

10. The undertaker and the licensee must each act in good faith and use reasonable endeavours to cooperate with, and provide assistance to, each other as may be required to give effect to the provisions of this Schedule.

Compensation

11.—(1) The licensee shall, as soon as reasonably practicable after incurring any additional costs, serve the undertaker with an itemised invoice which details the amount payable to the licensee which compensates the licensee for incurring such additional costs.

(2) Subject to sub-paragraph (3), within 28 days of receipt of such an itemised invoice, the undertaker shall pay the licensee's costs detailed in such itemised invoice by electronic transfer in immediately available funds to the licensee, to such account as is designated by the licensee, quoting the invoice number against which payment is made.

(3) Where the amount of any sum contained in any invoice is disputed, the undisputed amount of such invoice shall be paid by the undertaker on or before the due date except in the case of fraud. Where the amount of any sum is disputed, the undertaker shall notify the licensee of the amount in dispute as soon as possible and, in any event, not later than twenty eight (28) days from the date of receipt of the invoice. For a period of thirty (30) days from the date of receipt by the licensee of the notification of any disputed amount, the undertaker and the licensee shall exercise reasonable endeavours to resolve the dispute. If the disputed amount is not resolved within such thirty (30) days of receipt of the notification, the disputed amount may be referred to arbitration for determination pursuant to paragraph 13 below. If the disputed amount is ultimately resolved or determined in favour of the licensee, the undertaker shall pay to the licensee the difference between the original invoice amount already paid and the final agreed or determined amount.

12. Nothing in this Part of this Schedule shall affect any rights or obligations or assessment of compensation in accordance with the ministerial statement and any associated guidance.

Arbitration

13. Any difference arising between the undertaker and the licensee under this Part shall be referred to and settled by arbitration under article 15 (arbitration).

PART 4

For the protection of Stena Line Limited

Application

1. For the protection Stena Line the following provisions, unless otherwise agreed at any time between the undertaker and Stena Line, have effect.

Interpretation

2. In this Part of this Schedule—

“authorised development” has the same meaning as in Schedule 1 of this Order;

“commence” has the same meaning as in article 2 of this Order and commencement is construed to have the same meaning;

“licensing authority” has the same meaning as in condition 1 of Schedule 6;

“Liverpool to Belfast route” means the base case passage plan which proceeds to the east of the Isle of Man and east of the Calder CA1 platform taken by Stena Line vessels transiting from the Port of Liverpool to the Port of Belfast;

“specified works” means any construction or decommissioning of the authorised development which is reasonably likely to be situated on, over, under or within 1.5 nautical miles measured in any direction of the Liverpool to Belfast route operated by Stena Line;

“Stena Line” means Stena Line Limited, a limited company registered in England & Wales under Company No. 01402237 and having its registered office at First Floor, 6 Arlington Street, London, England, SW1A 1RE; and

“vessel traffic management plan” means the vessel traffic management plan that is submitted in accordance with the outline vessel traffic management plan as required by condition 9(j) of Schedule 6 of this Order.

Consultation and notification

3. The undertaker must notify Stena Line of the intended start date and the likely duration of the carrying out of any specified work at least 28 days prior to the commencement of any specified work and have regard to any response received from Stena Line.

4. The undertaker must notify Stena Line at least 28 days prior to the commencement of any specified works that involve the installation of subsea cable circuits and subsea cable ducts, such written notice to include full details of the location of any subsea cable circuits and subsea cable ducts and any other apparatus, equipment or infrastructure that is to be inserted in the underwater environment.

Vessel Traffic Management Plan

5. The undertaker must consult Stena Line before submitting the vessel traffic management plan to any licensing authority and the undertaker must have regard to any response received from Stena Line in respect of the Vessel Traffic Management Plan.

Co-operation and reasonableness

6. The undertaker and Stena Line must act reasonably in respect of any given term of this Part of this Schedule and, in particular, (without prejudice to generality) where any consent or expression of satisfaction is required by this Part of this Schedule it must not be unreasonably withheld or delayed.

Miscellaneous

7. Nothing in this Part of this Schedule affects the provisions of any enactment or agreement regulating the relations between the undertaker and Stena Line in respect of the authorised development provided that the terms of the relevant enactment or agreement are not inconsistent with the provisions of this Order, including this Part of this Schedule. In the case of any inconsistency, the provisions of this Order, including this Part of this Schedule, prevail.

8. Any dispute arising between the undertaker and Stena Line under this Part of this Schedule is to be determined by arbitration in accordance with article 15 (arbitration).

SCHEDULE 4

Article 14

Approval of matters specified in requirements

Interpretation

1. In this Schedule—

“application” means an application for any consent, agreement or approval required by a requirement whether or not the application seeks to discharge a requirement in whole or in part; and

“discharging authority” means any body responsible for giving any consent, agreement or approval required by a requirement included in Part 2 (requirements) of Schedule 2, or for giving any consent, agreement or approval further to any document referred to in any such requirement.

Applications made under requirements

2.—(1) Where an application has been made to the discharging authority for any agreement or approval required pursuant to a requirement included in this Order, the discharging authority must give notice to the undertaker of their decision, including the reasons, on the application, within a period of eight weeks beginning with—

- (a) the day immediately following that on which the application is received by the discharging authority; or
- (b) where further information is requested under paragraph 3 the day immediately following that on which the further information has been supplied by the undertaker, or such longer period as may be agreed by the undertaker and the discharging authority.

(2) Where consent, agreement or approval is refused or granted subject to conditions the discharging authority must provide its reasons for that decision with the notice of the decision.

Further information

3.—(1) Where an application has been made under paragraph 2 the discharging authority has the right to request such reasonable further information from the undertaker as is necessary to enable it to consider the application.

(2) If the discharging authority considers further information is needed, and the requirement does not specify that consultation with a requirement consultee is required, it must, within 10 days of receipt of the application, notify the undertaker specifying the further information required.

(3) If the requirement indicates that consultation must take place with a consultee, the discharging authority must issue the consultation to the requirement consultee within five working days of receipt of the application. Where the consultee requires further information, they must notify the discharging authority specifying the further information required within 10 days of receipt of the consultation. The discharging authority must notify the undertaker specifying any further information requested by the requirement consultee within five working days of receipt of such a request.

(4) In the event that the discharging authority does not give such notification as specified in sub-paragraphs (2) or (3), it is deemed to have sufficient information to consider the application and is not thereafter entitled to request further information without the prior agreement of the undertaker.

Provision of information by consultees

4.—(1) Any consultee who receives a consultation under paragraph 3(3) must respond to that request within 28 days from receipt unless sub-paragraph (2) of this paragraph applies.

(2) Where any consultee requests further information in accordance with the timescales set out in paragraph 3(3) then they must respond to the consultation within ten working days from the receipt of the further information requested.

Appeal

5.—(1) The undertaker may appeal in the event that—

- (a) the discharging authority refuses an application for any consent, agreement or approval required by—
 - (i) a requirement included in this Order; or
 - (ii) a document referred to in any requirement contained in Schedule 2 (requirements);

- (b) the discharging authority does not determine such an application within the time period set out in paragraph 2(1), or grants it subject to conditions;
- (c) on receipt of a request for further information pursuant to paragraph 3 of this Part of this Schedule, the undertaker considers that either the whole or part of the specified information requested by the discharging authority is not necessary for consideration of the application; or
- (d) on receipt of any further information requested, the discharging authority notifies the undertaker that the information provided is inadequate and requests additional information which the undertaker considers is not necessary for consideration of the application.

(2) The appeal process is to be as follows—

- (a) any appeal by the undertaker must be made within 42 days of the date of the notice of the decision or determination, or (where no determination has been made) the expiry of the time period set out in paragraph 2(1), giving rise to the appeal referred to in sub-paragraph (1);
- (b) the undertaker must submit the appeal documentation to the Secretary of State and must on the same day provide copies of the appeal documentation to the discharging authority and any consultee required to be consulted pursuant to the requirement which is the subject of the appeal (together with the undertaker, these are the “appeal parties”);
- (c) as soon as is practicable after receiving the appeal documentation, the Secretary of State must appoint a person (“the appointed person”) to determine the appeal and must notify the appeal parties of the identity of the appointed person and the address to which all correspondence for their attention should be sent, the date of such notification being the “start date” for the purposes of this sub-paragraph (2);
- (d) the discharging authority and any consultee required to be consulted pursuant to the requirement which is the subject of the appeal must submit written representations to the appointed person in respect of the appeal within ten working days of the start date and must ensure that copies of their written representations are sent to each other and to the undertaker on the day on which they are submitted to the appointed person;
- (e) the appeal parties must make any counter-submissions to the appointed person within ten working days of receipt of written representations pursuant to sub-paragraph (2)(d); and
- (f) the appointed person must make their decision and notify it to the appeal parties, with reasons, as soon as reasonably practicable following the deadline for the receipt of counter-submissions pursuant to sub-paragraph (2)(e).

(3) The appointment of the person pursuant to sub-paragraph (2)(c) may be undertaken by a person appointed by the Secretary of State for this purpose instead of by the Secretary of State.

(4) In the event that the appointed person considers that further information is necessary to consider the appeal, the appointed person must as soon as practicable notify the appeal parties in writing specifying the further information required and the date by which the information is to be submitted and the appointed person must make any notification and set the date for the receipt of such further information having regard to the timescales in sub-paragraph (2).

(5) Any further information required under sub-paragraph (4) must be provided by the appeal party from whom the further information was requested to the appointed person and other appeal parties, the discharging authority and any consultee required to be consulted pursuant to the requirement that is the subject of the appeal on the date specified by the appointed person (the “specified date”), and the appointed person must notify the appeal parties of the revised timetable for the appeal on or before that date. The revised timetable for the appeal must require submission of written representations to the appointed person within ten working days of the specified date but otherwise is to be in accordance with the process and time limits set out in sub-paragraphs (2)(c) to (2)(e).

(6) On an appeal under this sub-paragraph, the appointed person may—

- (a) allow or dismiss the appeal; or

(b) reverse or vary any part of the decision of the discharging authority (whether the appeal relates to that part of it or not).

(7) The appointed person may proceed to a decision on an appeal taking into account only such written representations as have been sent within the relevant time limits and in the sole discretion of the appointed person such written representations as have been sent outside of the relevant time limits.

(8) The appointed person may proceed to a decision even though no written representations have been made within the relevant time limits, if it appears to the appointed person that there is sufficient material to enable a decision to be made on the merits of the case.

(9) The decision of the appointed person on an appeal is to be final and binding on the parties, and a court may entertain proceedings for questioning the decision only if the proceedings are brought by a claim for judicial review.

(10) If an approval is given by the appointed person pursuant to this paragraph, it is to be deemed to be an approval for the purpose of Schedule 2 as if it had been given by the discharging authority. The discharging authority may confirm any determination given by the appointed person in identical form in writing but a failure to give such confirmation (or a failure to give it in identical form) is not to be taken to affect or invalidate the effect of the appointed person's determination.

(11) Save where a direction is given pursuant to sub-paragraph (12) requiring the costs of the appointed person to be paid by the discharging authority, the reasonable costs of the appointed person must be met by the undertaker.

(12) The appointed person may, following application by the discharging authority or the undertaker, or in the absence of such application, give directions as to the costs of the appeal parties and as to the parties by whom the costs of the appeal are to be paid. In considering whether to make any such direction and the terms on which it is to be made, the appointed person must have regard to the Planning Practice Guidance: Appeals (March 2014) or any circular or guidance which may from time to time replace it.

SCHEDULE 5

Article 15

Arbitration rules

Primary objective

1.—(1) The primary objective of these arbitration rules is to achieve a fair, impartial, final and binding award on the substantive difference between the parties (save as to costs) within four months from the date the arbitrator is appointed pursuant to article 15 (arbitration) of the Order.

(2) The parties will first use their reasonable endeavours to settle a dispute amicably through negotiations undertaken in good faith by the senior management of the parties. Any dispute which is not resolved amicably by the senior management of the parties within twenty working days of the dispute arising, or such longer period as agreed in writing by the parties, will be subject to arbitration in accordance with the terms of this Schedule.

(3) The arbitration will be deemed to have commenced when a party ("the claimant") serves a written notice of arbitration on the other party ("the respondent").

Time periods

2.—(1) All time periods in these arbitration rules will be measured in working days.

(2) Time periods will be calculated from the day after the arbitrator is appointed which will be either—

(a) the date the arbitrator notifies the parties in writing of his/her acceptance of an appointment by agreement of the parties; or

- (b) the date the arbitrator is appointed by the Secretary of State.

Timetable

3.—(1) The timetable for the arbitration will be that set out in sub-paragraphs (2) to (4) below unless amended in accordance with paragraph 5(3).

(2) Within 15 days of the arbitrator being appointed, the claimant must provide both the respondent and the arbitrator with—

- (a) a written statement of claim which describes the nature of the difference between the parties, the legal and factual issues, the claimant's contentions as to those issues, and the remedy it is seeking; and
- (b) all statements of evidence and copies of all documents on which it relies, including contractual documentation, correspondence (including electronic documents), legal precedents and expert witness reports.

(3) Within 15 days of receipt of the claimant's statements under sub-paragraph (2) by the arbitrator and respondent, the respondent must provide the claimant and the arbitrator with—

- (a) a written statement of defence responding to the claimant's statement of claim, its statement in respect of the nature of the difference, the legal and factual issues in the claimant's claim,
- (b) its acceptance of any element(s) of the claimant's claim, its contentions as to those elements of the claimant's claim it does not accept;
- (c) all statements of evidence and copies of all documents on which it relies, including contractual documentation, correspondence (including electronic documents), legal precedents and expert witness reports; and
- (d) any objections it wishes to make to the claimant's statements, comments on the claimant's expert report(s) (if submitted by the claimant) and explanations for the objections.

(4) Within five days of the respondent serving its statements under sub-paragraph (3), the claimant may make a statement of reply by providing both the respondent and the arbitrator with—

- (a) a written statement responding to the respondent's submissions, including its reply in respect of the nature of the difference, the legal and factual issues and its contentions in relation to the issues;
- (b) all statements of evidence and copies of documents in response to the respondent's submissions;
- (c) any expert report in response to the respondent's submissions;
- (d) any objections to the statements of evidence, expert reports or other documents submitted by the respondent; and
- (e) its written submissions in response to the legal and factual issues involved.

Procedure

4.—(1) The arbitrator will make an award on the substantive difference based solely on the written material submitted by the parties unless the arbitrator decides that a hearing is necessary to explain or resolve any matters.

(2) Either party may, within two days of delivery of the last submission, request a hearing giving specific reasons why it considers a hearing is required.

(3) Within five days of receiving the last submission, the arbitrator will notify the parties whether a hearing is to be held and the length of that hearing.

(4) Within ten days of the arbitrator advising the parties that he will hold a hearing, the date and venue for the hearing will be fixed by agreement with the parties, save that if there is no agreement the arbitrator must direct a date and venue which he considers is fair and reasonable in

all the circumstances. The date for the hearing must not be less than 35 days from the date of the arbitrator's direction confirming the date and venue of the hearing.

(5) A decision will be made by the arbitrator on whether there is any need for expert evidence to be submitted orally at the hearing. If oral expert evidence is required by the arbitrator, then any expert(s) attending the hearing may be asked questions by the arbitrator.

(6) There will be no process of examination and cross-examination of experts, but the arbitrator will invite the parties to ask questions of the experts by way of clarification of any answers given by the expert(s) in response to the arbitrator's questions. Prior to the hearing the procedure for the expert(s) will be that—

- (a) at least 20 days before a hearing, the arbitrator will provide a list of issues to be addressed by the expert(s);
- (b) if more than one expert is called, they will jointly confer and produce a joint report or reports within ten days of the issues being provided; and
- (c) the form and content of a joint report will be as directed by the arbitrator and must be provided at least five days before the hearing.

(7) Within ten days of a hearing or a decision by the arbitrator that no hearing is to be held the parties may by way of exchange provide the arbitrator with a final submission in connection with the matters in dispute and any submissions on costs. The arbitrator will take these submissions into account in the award.

(8) The arbitrator may make other directions or rulings as considered appropriate in order to ensure that the parties comply with the timetable and procedures to achieve an award on the substantive difference within four months of the date on which they are appointed, unless both parties otherwise agree to an extension to the date for the award.

(9) If a party fails to comply with the timetable, procedure or any other direction then the arbitrator may continue in the absence of a party or submission or document and may make a decision on the information before them attaching the appropriate weight to any evidence submitted beyond any timetable or in breach of any procedure or direction.

(10) The arbitrator's award must include reasons. The parties will accept that the extent to which reasons are given is to be proportionate to the issues in dispute and the time available to the arbitrator to deliver the award.

Arbitrator's powers

5.—(1) The arbitrator has all the powers of the Arbitration Act 1996(a), including the non-mandatory sections, save where modified by these rules.

(2) There will be no discovery or disclosure, except that the arbitrator has the power to order the parties to produce such documents as are reasonably requested by another party no later than the statement of reply, or by the arbitrator, where the documents are manifestly relevant, specifically identified and the burden of production is not excessive. Any application and orders should be made by way of a Redfern Schedule without any hearing.

(3) Any time limits fixed in accordance with this procedure or by the arbitrator may be varied by agreement between the parties, subject to any such variation being acceptable to and approved by the arbitrator. In the absence of agreement, the arbitrator may vary the timescales or procedure (or both)—

- (a) if the arbitrator is satisfied that a variation of any fixed time limit is reasonably necessary to avoid a breach of the rules of natural justice and then;
- (b) only for such period that is necessary to achieve fairness between the parties.

(4) On the date the award is made, the arbitrator will notify the parties that the award is completed, signed and dated, and that it will be issued to the parties on receipt of cleared funds for the arbitrator's fees and expenses

(a) 1996 c. 23.

Costs

6.—(1) The costs of the arbitration will include the fees and expenses of the arbitrator, the reasonable fees and expenses of any experts and the reasonable legal and other costs incurred by the parties for the arbitration.

(2) Subject to sub-paragraph (3), the arbitrator will award recoverable costs on the general principle that each party should bear its own costs.

(3) The arbitrator may depart from the general principle in sub-paragraph (2) and make such other costs award as it considers reasonable where a party has behaved unreasonably as defined within the National Planning Practice Guidance or such other guidance as may replace it.

Confidentiality

7.—(1) Subject to sub-paragraphs (2) and (3), any arbitration hearing and documentation will be confidential and will only be publicly disclosed where required by law or with the agreement of both parties.

(2) The arbitrator may direct that the whole or part of a hearing is to be private or any documentation to be confidential where it is necessary in order to protect commercially sensitive information.

(3) Nothing in this paragraph prevents any disclosure of a document by a party pursuant to an order of a court in England and Wales or where disclosure is required under any enactment

SCHEDULE 6

Article 5

Deemed Marine Licence under the 2009 Act: Morecambe Offshore Windfarm Generation Assets

PART 1

Licensed marine activities

Interpretation

1.—(1) In this marine licence—

“2004 Act” means the Energy Act 2004(a);

“2008 Act” means the Planning Act 2008(b);

“2009 Act” means the Marine and Coastal Access Act 2009(c);

“address” includes any number or address used for the purposes of electronic transmission;

“ancillary works” means the ancillary works described in Part 2 of Schedule 1 (ancillary works) and any other works authorised by this Order that are not development within the meaning of section 32 of the 2008 Act;

“authorised deposits” means the substances and articles specified in paragraph 4 of Part 1 of this licence;

“authorised development” means the development and associated development described in Part 1 of Schedule 1 (authorised development) and any other development authorised by this Order that is development within the meaning of section 32 of the 2008 Act;

(a) 2004 c. 20. Section 105 was amended by section 69 of the Energy Act 2008 (c. 32).

(b) 2008 c. 29.

(c) 2009 c. 23.

“authorised project” means the authorised development and the ancillary works authorised by this Order;

“bank holiday” means a bank holiday in England and Wales under section 1 of the Banking and Financial Dealings Act 1971(a);

“buoy” means any floating device used for navigational purposes or measurement purposes, including wave buoys, LiDAR and guard buoys and mooring buoys;

“cable” means any cable up to 275kV for the transmission of electricity and includes direct lay cables, cables laid in cable ducts or protective covers, and further includes fibre optic and other communications cables either within the cable or laid alongside;

“cable crossings” means the crossing of existing sub-sea cables, pipelines or other existing infrastructure by the cables authorised by this Order together with cable protection;

“cable protection” means measures to protect cables from physical damage and exposure due to loss of seabed sediment including but not limited to rock placement or rock berms, concrete mattresses, the use of bagged solutions filled with grout or other materials and flow energy dissipation devices;

“commence” means the first carrying out of any licensed activities, save for activities consisting of pre-construction surveys, monitoring surveys and unexploded ordnance surveys, and any derivative of “commence” is to be construed accordingly;

“condition” means a condition in Part 2 of this licence;

“decommissioning programme” has the meaning given by section 105(2) of the 2004 Act(b);

“design statement” means the document certified as the design statement by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“draft marine mammal mitigation protocol” means the document certified as the draft marine mammal mitigation protocol by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“electronic transmission” or “electronically” means a communication transmitted—

- (a) by means of an electronic communications network; or
- (b) by other means but whilst in electronic form;

“environmental statement” means the document certified as the environmental statement by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“foundation” means any one or more of:

- (a) a gravity base foundation;
- (b) a multi-legged jacket with piling foundation;
- (c) a monopile foundation; or
- (d) a multi-legged jacket with suction bucket foundation;

“gravity base foundation” means a structure principally of steel, concrete, or steel and concrete with a base which rests on the seabed either due to its own weight with or without added ballast or additional skirts and associated equipment including scour protection, J-tubes, corrosion protection systems and access platforms and equipment;

“HAT” means highest astronomical tide;

“HVAC” means high voltage alternating current;

“in principle monitoring plan” means the document certified as the in principle monitoring plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“inter-array cables” means the HVAC cables linking the wind turbine generators to each other and to the offshore substation platforms;

(a) 1971 c. 80.

(b) 2004 c. 20. Section 105 was amended by section 69 of the Energy Act 2008 (c. 32).

“km” means kilometres and “km²” means square kilometres;

“kV” means kilovolt;

“LAT” means lowest astronomical tide;

“licensed activities” means those activities specified in Part 1 of this licence;

“LiDAR” means a light detection and ranging system used to measure weather and sea conditions;

“m” means metres, “m²” means square metres and “m³” means cubic metres;

“maintain” includes inspect, maintain, upkeep, repair, adjust and alter the authorised project, and further includes remove, reconstruct and replace any of the ancillary works and any component part of the authorised project (but not including the removal or replacement of foundations) provided that such works do not give rise to any materially new or materially different environmental effects to those identified in the environmental statement; and any derivative of “maintain” is to be construed accordingly;

“Marine Management Organisation” or “MMO” means the body created under the 2009 Act which is responsible for the regulation of this licence or any successor of that function;

“MCA” means the Maritime and Coastguard Agency, the executive agency of the Department for Transport;

“MCMS” means the Marine Case Management System web portal provided and operated by the MMO;

“MGN654” means MGN654 “Offshore Renewable Energy Installations (OREIs) – Guidance on UK Navigational Practice, Safety and Emergency Response Issues” (or any equivalent guidance that replaces or supersedes it) and its annexes;

“monopile foundation” means a steel pile either driven or driven and drilled into the seabed and associated equipment including scour protection, equipment including J-tubes, corrosion protection systems and access platforms and equipment;

“multi-legged jacket with piling foundation” means a steel jacket/lattice-type structure constructed of steel, fixed to the seabed with concrete or hollow steel pin piles and associated equipment including scour protection, J-tubes, corrosion protection systems and access platforms and equipment;

“multi-legged jacket with suction bucket foundation” means a steel jacket/lattice-type structure constructed of steel, fixed to the seabed with a tubular steel structure which partially or fully penetrates the seabed securing the jacket foundations by means of suction generated on the inside of the bucket and associated equipment, including scour protection, J-tubes, corrosion protection systems and access platforms and equipment;

“offshore order limits and grid coordinates plan” means the document certified as the offshore order limits and grid coordinates plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“offshore substation platform” or “OSP” means a structure above LAT and attached to the seabed by means of one or more foundations, with one or more decks and open with modular equipment or fully clad, containing—

- (a) electrical equipment required to switch, transform or convert electricity generated at the wind turbine generators to a higher voltage and provide reactive power compensation, including high voltage power transformers, high voltage switchgear and busbars, substation auxiliary systems and low voltage distribution, instrumentation, metering equipment and control systems, standby generators, shunt reactors, auxiliary and uninterruptible power supply systems;
- (b) accommodation, storage, workshop auxiliary equipment and facilities for operating, maintaining and controlling the substation or wind turbine generators, including navigation, aviation and safety marking and lighting, systems for vessel access and retrieval, cranes, potable water supply, black water separation, stores, fuels and spares, communications systems and control hub facilities;

“offshore works plan” means the document certified as the offshore works plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order.

“operation” means the undertaking of activities authorised by this Order which are not part of the construction, commissioning or decommissioning of the authorised project;

“Order” means The Morecambe Offshore Windfarm Generation Assets Order 202[●];

“Order limits” means the limits shown on the offshore works plan within which the authorised project may be carried out, whose grid coordinates are set out in Part 1 of Schedule 1 (authorised development) of this Order and shown on the offshore order limits and grid coordinates plan;

“outline construction method statement” means the document certified as the outline construction method statement by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order

“outline fisheries liaison and co-existence plan” means the document certified as the outline fisheries liaison and co-existence plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“outline offshore operation and maintenance plan” means the document certified as the outline offshore operation and maintenance plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“outline offshore written scheme of investigation” plan means the document certified as the outline offshore written scheme of investigation by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“outline project environmental management plan” means the document certified as the outline project environmental management plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“outline scour protection and cable protection plan” means the document certified as the outline scour protection and cable protection plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“outline underwater sound management strategy” means the document certified as the outline underwater sound management strategy by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“outline vessel traffic management plan” means the document certified as the outline vessel traffic management plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

“pin piles” means steel or concrete cylindrical piles either driven or driven and drilled into the seabed to secure steel jacket foundations;

“platform link cables” means the HVAC cables linking the offshore substation platforms to each other;

“row” means a row of wind turbine generators perpendicular to the prevailing wind;

“scour protection” means measures to prevent loss of seabed sediment around any structure placed in or on the seabed including but not limited to by the use of bagged solutions filled with grout or other materials, protective aprons, mattresses with or without frond devices, and rock, concrete and gravel placement;

“statutory historic body” means Historic England or its successor in function;

“statutory nature conservation body” means a statutory nature conservation body, being the appropriate nature conservation body as defined in Regulation 5 of the Conservation of Habitats and Species Regulations 2017^(a) or its equivalent in the Conservation of Offshore Marine Habitats and Species Regulations 2017^(b);

(a) S.I. 2017/1012.

(b) S.I. 2017/1013.

“transition piece” means the metal structure attached to the top of the foundation where the base of the wind turbine generator is connected and may include additional equipment such as J-tubes, corrosion protection systems, boat access systems, access platforms, craneage, radar, electrical transmission equipment and associated equipment;

“Trinity House” means the Corporation of Trinity House of Deptford Strond;

“UKHO” means the United Kingdom Hydrographic Office of Admiralty Way, Taunton, Somerset, TA1 2DN;

“undertaker” means Morecambe Offshore Windfarm Ltd (company registration number: SC734062);

“vessel” means every description of vessel, however propelled or moved, and includes a non-displacement craft, a personal watercraft, a seaplane on the surface of the water, a hydrofoil vessel, a hovercraft or any other amphibious vehicle and any other thing constructed or adapted for movement through, in, on, under or over water and which is at the time in, on, under or over water;

“VHF” means very high frequency;

“WGS84” means the World Geodetic System 1984;

“wind turbine generator” or “WTG” means a structure comprising a tower, rotor with three blades connected at the hub, nacelle and ancillary electrical and other equipment which may include J- tube(s), transition piece, access and rest platforms, access ladders, boat access systems, corrosion protection systems, fenders and maintenance equipment, helicopter hoisting facilities and other associated equipment including communications equipment, fixed to a foundation or transition piece; and

“working day” means a day other than a Saturday or Sunday, a bank holiday or other public holiday in England and Wales.

(2) In this licence a reference to any statute, order, regulation or similar instrument is a reference to a statute, order, regulation or instrument as amended by any subsequent statute, order, regulation or instrument or as contained in any subsequent re-enactment.

(3) In this licence, unless otherwise indicated—

- (a) all times are Greenwich Mean Time;
- (b) all coordinates are latitude and longitude degrees and minutes to two decimal places;
- (c) all references to orientations or angles are from true north measured in a clockwise direction; and
- (d) the expression “includes” is to be construed without limitation.

(4) Unless otherwise stated or agreed with the MMO, all submissions, notifications and communications must be sent by the undertaker to the MMO using MCMS. Except where otherwise notified by the relevant organisation, the addresses for correspondence for the purposes of this Schedule are—

- (a) Centre for Environment, Fisheries and Aquaculture Science

Pakefield Road

Lowestoft

Suffolk

NR33 0HT

Tel: 01502 562 244

- (b) Historic England

4th Floor

Cannon Bridge House

25 Dowgate Hill

London

- EC4R 2YA
Tel: 0161 242 1416
- (c) Marine Management Organisation
Marine Licensing Team
Lancaster House
Hampshire Court
Newcastle upon Tyne
NE4 7YH
Email: marine.consents@marinemanagement.org.uk
Tel: 0300 123 1032
- (d) Marine Management Organisation (local office)
Lutra House
Dodd Way
Walton Summit
Preston
PR5 8BX
Email: preston@marinemanagement.org.uk
Telephone: 0208 0265643
- (e) Maritime and Coastguard Agency
UK Technical Services Navigation
Spring Place
105 Commercial Road
Southampton
SO15 1EG
Email: navigationsafety@mcga.gov.uk
- (f) Natural England
Foss House
Kings Pool
1-2 Peasholme Green
York
YO1 7PX
- (g) Trinity House
Tower Hill
London
EC3N 4DH
Tel: 020 7481 6900
- (h) United Kingdom Hydrographic Office
Admiralty Way
Taunton
Somerset
TA1 2DN
Tel: 01823 337 900
Email: navwarnings@btconnect.com

Details of licensed marine activities

2. Subject to the licence conditions at Part 2, this licence authorises the undertaker (and any agent or contractor acting on its behalf) to carry out the following licensable marine activities under section 66(1) (licensable marine activities) of the 2009 Act—

- (a) the deposit at sea of the substances and objects specified in paragraph 4 below;
- (b) the construction of works in or over the sea or on or under the seabed;
- (c) excavation for the purposes of seabed preparation for foundation works or cable works;
- (d) site clearance and preparation works including debris, sandwave clearance, boulder clearance and the removal of out of service cables and static fishing equipment; and
- (e) the disposal of up to 1,416,463 cubic metres of inert material of natural origin within the Order limits produced during construction, operation and maintenance at disposal site references to be provided to the MMO within the Order limits.

3. Such activities are authorised in relation to the construction, operation, maintenance and otherwise carrying on of—

Work No. 1:

- (a) an offshore wind generating station with a gross electrical output capacity of more than 100 MW comprising up to 35 wind turbine generators each fixed to the seabed by a foundation; and
- (b) a network of subsea inter-array cables between the wind turbine generators and between the wind turbine generators and the offshore substation platforms forming part of Work No. 2 including cable crossings and cable protection;

and associated development within the meaning of section 115(2) of the 2008 Act comprising—

Work No. 2:

- (a) one or two offshore substation platforms each fixed to the seabed by a foundation; and
- (b) a network of subsea platform link cables including cable crossings and cable protection;

and in connection with the licensed activities in Work No. 1 and Work No. 2 and to the extent that they do not otherwise form part of any such work, further associated development within the meaning of section 115(2) (development for which development consent may be granted) of the 2008 Act comprising such other works as may be necessary or expedient for the purposes of or in connection with the relevant part of the authorised project and which fall within the scope of the work assessed by the environmental statement and the provisions of this licence, including—

- (a) scour protection around the foundations of the offshore structures;
- (b) cable protection measures;
- (c) the removal of material from the seabed and the disposal of inert material of natural origin within the Order limits produced during seabed preparation for and installation of foundations and cables (including sandwave clearance and seabed levelling) and boulder clearance;
- (d) removal of out of service cables and static fishing equipment; and
- (e) disposal of drill arisings in connection with any foundation drilling up to a total of 55,865 cubic metres.

and the following ancillary works which are within the Order limits and which fall within the scope of the work assessed by the environmental statement comprising:

- (a) moorings or other means of accommodating vessels in the construction or maintenance of the authorised project; and
- (b) marking buoys, beacons, fenders and other navigational warning or ship impact protection works.

4. The substances and objects authorised for deposit at sea are—

- (a) iron, steel, copper and aluminium;

- (b) stone and rock;
- (c) concrete and grout;
- (d) sand and gravel;
- (e) plastic and synthetic;
- (f) material extracted from within the Order limits during construction drilling or seabed preparation for foundation works, cable preparation works (including sandwave clearance) and cable installation works; and
- (g) marine coatings, other chemicals and timber.

5. The activities set out in paragraph 3 are to be located within the area delineated by the coordinates shown on the offshore order limits and grid coordinates plan and listed in Table 4 below—

Table 4

<i>Point</i>	<i>Latitude</i>	<i>Longitude</i>
1	53° 50' 11.03673656" N	003° 36' 31.65915051" W
2	53° 49' 41.72634557" N	003° 34' 15.69323747" W
3	53° 49' 45.14948499" N	003° 29' 48.00160838" W
4	53° 45' 16.81576507" N	003° 29' 38.45882862" W
5	53° 45' 00.78002400" N	003° 36' 04.79995593" W
6	53° 46' 45.95836718" N	003° 40' 53.89383116" W

6. This licence remains in force until the authorised project has been decommissioned in accordance with a decommissioning programme approved by the Secretary of State under section 106 (approval of decommissioning programmes) of the 2004 Act, including any modification to the programme under section 108, and the completion of such programme has been confirmed by the Secretary of State.

7. The provisions of section 72 (variation, suspension, revocation and transfer) of the 2009 Act apply to this licence except that the provisions of section 72(7) and (8) relating to the transfer of the licence apply only to a transfer not falling within article 7 (benefit of order) of the Order.

8. Should the undertaker become aware that any of the information on which the granting of this licence was based was materially false or misleading, the undertaker must notify the MMO of this fact as soon as is reasonably practicable. The undertaker must explain in writing what information was materially false or misleading and must provide to the MMO the correct information.

PART 2

Conditions

Design parameters

1.—(1) The authorised project must be constructed in accordance with the parameters assessed in the environmental statement and set out in Table 5.

Table 5

<i>Parameter</i>	<i>Value</i>
Maximum number of wind turbine generators	35
Maximum total rotor swept area (m ²)	1,858,252
Maximum height of wind turbine generators when measured from HAT to the tip of the vertical blade (m)	310
Maximum rotor diameter of each wind turbine generator (m)	280

Minimum distance from HAT to the lowest point of the rotating blade for each turbine (m)	25
Minimum intra-row distance (between wind turbine generators in a row of wind turbine generators) (m)	1,060
Minimum inter-row distance (between rows of wind turbine generators) (m)	1,410
Maximum diameter of monopiles for wind turbine generators on monopile foundations (m)	12
Maximum diameter of piles for wind turbine generators on multi-legged jackets with piling foundations (m)	3
Maximum diameter of gravity base at the seabed for wind turbine generators on gravity base foundations (m)	65
Maximum diameter of suction buckets for wind turbine generators on multi-legged jackets with suction bucket foundations (m)	20
Maximum diameter of monopiles for offshore substation platform monopile foundations (m)	12
Maximum diameter of piles for offshore substation platforms on multi-legged jackets with piling foundations (m)	3
Maximum diameter of gravity base at the seabed for offshore substation platforms on gravity base foundations (m)	65
Maximum diameter of suction buckets for offshore substation platforms on multi-legged jackets with suction bucket foundations (m)	20
Maximum total seabed footprint of wind turbine generators (including scour protection) (m ²)	248,080
Maximum number of offshore substation platforms	2
Maximum dimensions of offshore substation platforms (excluding towers, helipads, masts, cranes and lightning protection):	
(a) Height when measured from HAT (m)	50
(b) Length (m)	50
(c) Width (m)	50
Maximum height when measured from HAT of offshore substation platforms (including helipads and lightning protection) (m)	70
Maximum total seabed footprint area for offshore substation platform foundations (including scour protection) (m ²)	14,176
Maximum total length of cables (inter-array and platform link cables) (km)	80
Maximum number of cable crossings	15
Maximum volume of natural material for disposal (m ³)	1,416,463
Maximum total footprint of scour protection (m ²) (exclusive of foundations for wind turbine generators and offshore substation platforms)	139,490
Maximum total volume of scour protection for wind turbine generators and offshore substation platforms (m ³)	278,980
Maximum footprint of cable protection (m ²) (including cable protection, entries to offshore substation platforms and wind turbine generators and cable crossings)	216,250
Maximum volume of cable protection (m ³) (including cable protection, entries to offshore substation platforms and wind turbine generators and cable crossings)	259,700
Maximum hammer energy (kilojoules or kJ) employed during installation of pin piles	2,500
Maximum hammer energy (kilojoules or kJ) employed during installation of monopile foundations	6,600

(2) No part of any wind turbine generator or offshore substation platform to be constructed as part of the authorised project shall be located within 7.5km of a line between 53° 48.8' N 3°23.8' W and 53° 52.65' N 3°23.8' W.

Maintenance of the authorised project

2.—(1) The undertaker may at any time maintain the authorised project, except to the extent that this deemed marine licence or an agreement made under this marine licence provides otherwise.

(2) Maintenance works include but are not limited to—

- (a) major wind turbine component or offshore substation platform replacement;
- (b) painting and applying other coatings to wind turbine generators, foundation structures (including transition pieces) or offshore substation platforms;
- (c) bird waste and marine growth removal;
- (d) cable remedial burial;
- (e) cable repairs and replacement;
- (f) cable protection and scour protection replenishment or replacement;
- (g) access ladder and boat landing replacement;
- (h) anode replacement in connection with any wind turbine generator, offshore substation platform or foundation; and
- (i) J-tube repair/replacement.

(3) No maintenance works authorised by this licence may be carried out until an offshore operation and maintenance plan in accordance with the outline offshore operation and maintenance plan has been submitted to and approved by the MMO.

(4) All maintenance works must be carried out in accordance with the approved offshore operation and maintenance plan unless otherwise agreed by the MMO.

(5) An annual maintenance report must be submitted to the MMO within one month following the first anniversary of the date of first operation of the authorised development (notified in accordance with paragraph 18 (Completion of construction)) and every year thereafter until the permanent cessation of operation.

(6) The annual maintenance report in sub-paragraph (5) must provide a record of the licensed activities during the preceding year, the timing of activities and methodologies used.

(7) Every fifth year, the undertaker must submit to the MMO, within one month of the anniversary of the date of first operation of authorised development (notified in accordance with paragraph 18 (Completion of construction)), a consolidated maintenance report which will—

- (a) include a review of licensed activities undertaken during the preceding five years with reference to the reports submitted in accordance with sub-paragraph (5) of this licence; and
- (b) reconfirm the applicability of the methodologies and frequencies of the licensed activities permitted by this licence for the duration of this licence.

Extension of time periods

3. Any time period given in this licence to either the undertaker or the MMO may be extended with the agreement of the other party such agreement not to be unreasonably withheld or delayed.

Notifications and inspections

4.—(1) The undertaker must ensure that—

- (a) a copy of this licence (issued as part of the grant of the Order) and any subsequent amendments or revisions to it is provided to—
 - (i) all agents and contractors notified to the MMO in accordance with condition 13;

- (ii) the masters and transport managers responsible for the vessels notified to the MMO in accordance with condition 13;
 - (b) within 28 days of receipt of a copy of this licence and any subsequent amendments or revisions to it those persons referred to in sub-paragraph (1)(a) must confirm receipt of this licence to the MMO.
- (2) Only those persons and vessels notified to the MMO in accordance with condition 13 are permitted to carry out the licensed activities.
- (3) Copies of this licence must also be available for inspection at the following locations—
- (a) the undertaker's registered address;
 - (b) any site office located at or adjacent to the construction site and used by the undertaker or its agents and contractors responsible for the loading, transportation or deposit of the authorised deposits; and
 - (c) on board each vessel and at the office of any transport manager with responsibility for vessels from which authorised deposits or removals are to be made.
- (4) The documents referred to in sub-paragraph (1)(a) must be available for inspection by an authorised enforcement officer at the locations set out in sub-paragraph (3)(b).
- (5) The undertaker must provide access, and if necessary appropriate transportation, to the offshore construction site or any other associated works or vessels to facilitate any inspection that the MMO considers necessary to inspect the works during the construction, operation and maintenance of the authorised project.
- (6) The undertaker must inform the MMO local office at least five days prior to the commencement of the licensed activities or any part of them and within five days of the completion of the licensed activity.
- (7) The undertaker must inform the Kingfisher Information Service of Seafish by email to kingfisher@seafish.co.uk of details of the vessel routes, timings and locations relating to the construction of the authorised project or relevant part—
- (a) at least 14 days prior to the commencement of licensed activities, for inclusion in the Kingfisher Fortnightly Bulletin and offshore hazard awareness data;
 - (b) on completion of construction of all licensed activities,
- and confirmation of notification must be provided to the MMO within five days.
- (8) The undertaker must ensure that a notice to mariners is issued at least 14 days prior to the commencement of the authorised project advising of the start date of Work No. 1 and the expected vessel routes from the construction ports to the relevant location. Copies of all notices must be provided to the MMO, MCA and UKHO within five days.
- (9) The undertaker must ensure that notices to mariners are updated and reissued at regular intervals during construction activities and at least five days before any planned operation and maintenance works (or otherwise agreed) and supplemented with VHF radio broadcasts agreed with the MCA in accordance with the construction programme approved under condition 9(1)(b). Copies of all notices must be provided to the MMO and UKHO within five days.
- (10) The undertaker must notify UKHO of completion (within 14 days) of the authorised project or any part thereof in order that all necessary amendments to nautical charts are made. Copies of all notices must be provided to the MMO and MCA within five days.
- (11) In case of damage to, or destruction or decay of, the authorised project or any part thereof, excluding the exposure of cables, the undertaker must as soon as reasonably practicable and no later than 24 hours following the undertaker becoming aware of any such damage, destruction or decay, notify the MMO, MCA, Trinity House, the Kingfisher Information Service of Seafish and UKHO.
- (12) In case of the exposure of cables on or above the seabed, the undertaker must within three days following identification of a potential cable exposure, notify mariners and inform the Kingfisher Information Service of Seafish of the location and extent of exposure. Copies of all notices must be provided to the MMO, MCA, Trinity House, and UKHO within five days.

Aids to navigation

5.—(1) The undertaker must during the whole of the period from commencement of construction of the authorised project to completion of decommissioning of the authorised project exhibit such lights, marks, sounds, signals and other aids to navigation, and take such other steps for the prevention of danger to navigation, as Trinity House may from time to time direct.

(2) The undertaker must during the whole of the period from commencement of construction of the authorised project to completion of decommissioning of the authorised project keep Trinity House and the MMO informed of progress of the authorised project including—

- (a) notice of commencement of construction of the authorised project within 24 hours of commencement having occurred;
- (b) notice within 24 hours of any aids to navigation being established by the undertaker; and
- (c) notice within five days of completion of construction of the authorised project.

(3) The undertaker must provide reports to Trinity House on the availability of aids to navigation in accordance with the frequencies set out in the aids to navigation management plan agreed pursuant to condition 9(1)(h) using the reporting system provided by Trinity House.

(4) The undertaker must during the period from commencement of the licensed activities to completion of decommissioning of the authorised project notify Trinity House and the MMO of any failure of the aids to navigation and the timescales and plans for remedying such failures, as soon as possible and no later than 24 hours following the undertaker becoming aware of any such failure.

(5) In the event that the provisions of condition 4(11) are invoked, the undertaker must lay down such buoys, exhibit such lights and take such other steps for preventing danger to navigation as directed by Trinity House.

(6) Any jack up barges or vessels utilised during the licensed activities, when jacked up, must exhibit signals in accordance with the UK Standard Marking Schedule for Offshore Installations.

Colouring of Structures

6.—(1) Except as otherwise required by Trinity House, the undertaker must paint all structures forming part of the authorised project yellow (colour code RAL 1023) from at least HAT to a height as directed by Trinity House.

(2) Unless the MMO otherwise directs, the undertaker must paint the remainder of the structures grey (colour code RAL 7035).

Chemicals, drilling and debris

7.—(1) The carriage and use of chemicals in the construction of the authorised project must comply with the International Convention for the Prevention of Pollution from Ships.

(2) The undertaker must ensure that any coatings and treatments are suitable for use in the marine environment and are used in accordance with guidelines approved by the Health and Safety Executive and the Offshore Chemical Notification Scheme.

(3) The storage, handling, transport and use of fuels, lubricants, chemicals and other substances must be undertaken so as to prevent releases into the marine environment, including bunding of 110 percent of the total volume of all reservoirs and containers.

(4) The undertaker must inform the MMO of the location and quantities of material disposed of each month under this licence by submission of a disposal return by 15 February each year for the months August to January inclusive, and by 15 August each year for the months February to July inclusive.

(5) The undertaker must ensure that only inert material of natural origin, produced during the drilling installation of or seabed preparation for foundations, and drilling mud is disposed of within the Order limits.

(6) The undertaker must ensure that any rock material used in the construction of the authorised project is from a recognised source, free from contaminants and containing minimal fines.

(7) In the event that any rock material used in the construction of the authorised project is misplaced or lost within the Order limits, the undertaker must report the loss in writing to the local enforcement office within 48 hours and if the MMO reasonably considers such material to constitute a navigation or environmental hazard (dependent on the size and nature of the material) the undertaker must, in that event, demonstrate to the MMO that reasonable attempts have been made to locate, remove or move any such material.

(8) The undertaker must ensure that no waste concrete slurry or wash water from concrete or cement works are discharged into the marine environment. Concrete and cement mixing and washing areas must be contained to prevent run off entering the water through the freeing ports.

(9) The undertaker must ensure that any oil, fuel or chemical spill within the marine environment is reported to the MMO Marine Pollution Response Team in accordance with the marine pollution contingency plan agreed under condition 9(1)(e)(i).

(10) Debris or dropped objects which are considered a danger or hazard to navigation must be reported as soon as reasonably practicable but no later than six hours of the undertaker becoming aware of an incident, to the relevant HM Coastguard Maritime Rescue Co-ordination Centre by telephone, and United Kingdom Hydrographic Office by email.

(11) All dropped objects which are considered a danger or hazard to navigation or which, having regard to guidance issued by the MMO from time to time, would be considered reportable, must be reported to the MMO using the Dropped Object Procedure Form (or any updated or replacement form provided by the MMO) as soon as reasonably practicable and in any event within 24 hours of the undertaker becoming aware of an incident (or such other timescale as agreed with the MMO).

(12) On receipt of notification or the Dropped Object Procedure Form, the MMO may require relevant surveys to be carried out by the undertaker (such as side scan sonar) if reasonable to do so and the MMO may require obstructions to be removed from the seabed at the undertaker's expense if reasonable to do so.

Force majeure

8.—(1) If, due to stress of weather or any other unforeseeable cause, the master of a vessel determines that it is necessary to deposit the authorised deposits outside of the Order limits because the safety of human life or of the vessel is threatened, within 48 hours the undertaker must notify full details of the circumstances of the deposit to the MMO.

(2) The unauthorised deposits must be removed at the expense of the undertaker unless written approval is obtained from the MMO.

Pre-construction plans and documentation

9.—(1) No part of the licensed activities may commence until the following (insofar as relevant to that activity or phase of activity) have been submitted to and approved by the MMO in consultation with the relevant statutory nature conservation body, Trinity House or the MCA, as appropriate—

- (a) a design plan (which accords with the design statement) at a scale of between 1:25,000 and 1:50,000, including detailed representation on the most suitably scaled admiralty chart, which is to be submitted at least six months before the intended commencement of licensed activities to be approved by the MMO setting out proposed details of the authorised project, including the:
 - (i) number, dimensions, specification, and foundation type(s) for each wind turbine generator and offshore substation platform;
 - (ii) the proposed layout of all wind turbine generators and offshore substation platforms (which shall be in accordance with the recommendations for layout contained in MGN654 and its annexes), including grid coordinates of the centre point of the

proposed location for each wind turbine generator and offshore substation platform and providing that such centre point is subject to a maximum up to 55m micro-siting in any direction unless otherwise agreed with the MMO in consultation with the MCA and Trinity House;

- (iii) proposed specification and layout of all cables;
 - (iv) proposed location and specification of all other aspects of the authorised project; and
 - (v) any archaeological exclusion zones or micro-siting requirements relating to any benthic habitats of conservational, ecological or economic importance constituting reef habitats of principal importance as listed under section 41 of the Natural Environment and Rural Communities Act 2006^(a),
- to ensure conformity with the description of Work No. 1 and Work No. 2 and compliance with conditions 1 and 2;
- (b) a construction programme to include details of—
 - (i) the proposed construction start date;
 - (ii) proposed timings for mobilisation of plant delivery of materials and installation works;
 - (iii) an indicative written construction programme for all wind turbine generators and offshore substation platforms forming part of the authorised project and licensed activities;
 - (c) a monitoring plan (which accords with the in principle monitoring plan) to include details of proposed pre-construction surveys, baseline report format and content, construction monitoring, post-construction monitoring and related reporting in accordance with conditions 14, 15 and 16 to be submitted to the MMO in accordance with the following—
 - (i) at least six months prior to the first survey, details of the pre-construction surveys and an outline of all proposed pre-construction monitoring;
 - (ii) at least six months prior to construction, details on construction monitoring;
 - (iii) at least six months prior to completion of construction, details of operational monitoring, if required.
 - (d) an offshore construction method statement which is to be submitted at least six months before the intended commencement of licensed activities and is in accordance with the outline construction method statement and the construction methods assessed in the environmental statement, including details of—
 - (i) cable specification, installation and monitoring, to include—
 - (aa) the technical specification of the inter-array cables and platform link cables;
 - (bb) a detailed cable specification and installation plan for the authorised project, incorporating a cable burial risk assessment encompassing the identification of any cable protection that exceeds 5 percent of navigable depth referenced to Chart Datum and, in the event that any area of cable protection exceeding 5 percent of navigable depth is identified, details of any steps (to be determined following consultation with the MCA and Trinity House) to be taken to ensure existing and future safe navigation is not compromised or similar such assessment to ascertain suitable burial depths and cable laying techniques, including cable protection; and
 - (cc) details of cable monitoring including details of cable protection until the authorised project is decommissioned which includes a risk based approach to the management of unburied or shallow buried cables;
 - (ii) scour protection management and cable protection management (which accords with the outline scour protection and cable protection plan) which is to be submitted at

^(a) 2006 c. 16. Section 41 was amended by s. 102(8) of the Environment Act 2021 (c. 30).

- least six months before the installation of any scour protection or cable protection including details of the need, type, sources, quantity and installation methods for scour protection and cable protection, with details updated and resubmitted for approval if changes to it are proposed following cable laying operations;
- (iii) foundation installation methodology, including drilling methods and disposal of drill arisings and material extracted during seabed preparation for foundation and cable installation works;
 - (iv) wind turbine generator installation methodology;
 - (v) offshore substation platform installation methodology;
 - (vi) contractors;
 - (vii) associated ancillary works; and
 - (viii) guard vessels to be employed;
- (e) an offshore project environmental management plan which is to be submitted at least six months before the intended commencement of licensed activities and which accords with the outline project environmental management plan covering the period of construction and operation to include details of—
- (i) a marine pollution contingency plan to address the risks, methods and procedures to deal with any spills and collision incidents during construction and operation of the authorised project in relation to all activities carried out;
 - (ii) a site specific chemical risk assessment for all chemicals that have a pathway to the marine environment and are used for the licensed activities (with the exception of any chemicals used in the course of normal navigation), which is to be submitted to the MMO for approval at least ten weeks prior to the use of such chemicals, including—
 - (aa) the function of the chemical;
 - (bb) the quantities being used and the frequency of use; and
 - (cc) the physical, chemical and ecotoxicological properties of the chemical (save for any chemicals present on the OSPAR List of Substances Used and Discharged Offshore which Are Considered to Pose Little or No Risk to the Environment (PLONOR));
 - (iii) waste management and disposal arrangements;
 - (iv) the contact details and responsibilities of a fisheries liaison officer;
 - (v) measures to minimise disturbance to marine mammals and rafting birds from vessels;
 - (vi) measures to minimise the potential spread of invasive non-native species;
- (f) an offshore archaeological written scheme of investigation in relation to the Order limits, which must accord with the outline offshore written scheme of investigation and industry good practice, in consultation with the statutory historic body to include—
- (i) details of responsibilities of the undertaker, archaeological consultant and contractor;
 - (ii) a methodology for further site investigation including any specifications for geophysical, geotechnical and diver or remotely operated vehicle investigations;
 - (iii) archaeological analysis of survey data, and timetable for reporting, which is to be submitted to the MMO within four months of any survey being completed;
 - (iv) delivery of any mitigation including, where necessary, identification and modification of archaeological exclusion zones;
 - (v) monitoring of archaeological exclusion zones during and post construction;
 - (vi) a requirement for the undertaker to ensure that a copy of any agreed archaeological report is deposited with the Archaeological Data Service, by submitting an OASIS (Online Access to the Index of Archaeological Investigations) form with a digital copy of the report within six months of completion of construction of the authorised

project, and to notify Historic England and the MMO that the OASIS form has been submitted to the Archaeological Data Service within two weeks of submission;

- (vii) a reporting and recording protocol, including reporting of any wreck or wreck material during construction, operation and maintenance and decommissioning of the authorised project; and
- (viii) a timetable for all further site investigations, which must allow sufficient opportunity to establish a full understanding of the historic environment within the offshore Order limits and the approval of any necessary mitigation required as a result of the further site investigations prior to commencement of licensed activities;
- (g) an offshore operation and maintenance plan which is to be submitted at least six months before the intended commencement of licensed activities and is in accordance with the outline offshore operation and maintenance plan, to be submitted to the MMO at least four months prior to commencement of operation of the licensed activities and to provide for review and resubmission every three years during the operational phase;
- (h) an aids to navigation management plan to be agreed by the MMO following consultation with Trinity House specifying how the undertaker will ensure compliance with condition 5 from the commencement of construction of the authorised project to the completion of decommissioning;
- (i) in the event that driven or part-driven pile foundations are proposed to be used, a marine mammal mitigation protocol (in accordance with the draft marine mammal mitigation protocol) which is to be submitted at least six months before the commencement of installation of any such driven or part-driven pile foundations, the intention of which is to prevent injury to marine mammals, following current best practice as advised by the relevant statutory nature conservation body;
- (j) a vessel traffic management plan which is to be submitted at least six months before the intended commencement of licensed activities and is in accordance with the outline vessel traffic management plan; and
- (k) a fisheries liaison and co-existence plan (in accordance with the outline fisheries liaison and co-existence plan) which is to be submitted at least six months before the intended commencement of licensed activities to ensure relevant fishing fleets are notified of commencement of licensed activities pursuant to condition 4 and to include—
 - (i) the appointment and responsibilities of a fisheries liaison officer; and
 - (ii) measures to address the interaction of the licensed activities with fishing activities.

(2) Pre-commencement surveys and archaeological investigations and pre-commencement material operations which involve intrusive seabed works must only take place in accordance with a specific written scheme of investigation (which must accord with the details set out in the outline offshore written scheme of investigation) which has been submitted to and approved by the MMO.

(3) For the purposes of sub-paragraph (1)(e)(ii)—

- (a) “chemical” means a chemical element and will include both substances and preparations;
- (b) “pathway to the marine environment” means open systems or closed systems that require top up;
- (c) “preparation” means a mixture or solution composed of two or more substances; and
- (d) “substance” means a chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

10.—(1) Each programme, statement, plan, protocol or scheme required to be approved under condition 9 must be submitted for approval at least four months before the intended commencement of licensed activities, except where otherwise stated or unless otherwise agreed by the MMO.

(2) The MMO must determine an application for approval made under condition 9 within a period of four months commencing on the date the application is received by the MMO, except where an application is required to be made no less than six months prior to the intended commencement of the authorised scheme or relevant activity in which case the MMO must determine the application for approval within the period of six months commencing on the date the application is received by the MMO, unless otherwise agreed with the undertaker such agreement not to be unreasonably withheld or delayed.

(3) The licensed activities must be carried out in accordance with the plans, protocols, statements, schemes and details approved under condition 9.

Safety zones

11. The licensed activities or relevant part thereof must not commence until (insofar as relevant to the licensed activity) an application has been made to the Secretary of State for a safety zone for the relevant activities pursuant to the 2004 Act.

Offshore safety management

12. No part of the authorised project may commence until the MMO, in consultation with the MCA, has confirmed that the undertaker has taken into account and, so far as is applicable to that part of the authorised project, adequately addressed all MCA recommendations as appropriate to the authorised project contained within MGN654.

Reporting of engaged agents, contractors and vessels

13.—(1) The undertaker must provide the name, address and function of any agent, contractor or subcontractor that will carry out any of the licensed activities on behalf of the undertaker to the MMO no less than 24 hours (or such other timescale as agreed with the MMO) before that agent, contractor or subcontractor carries out any such licensed activities.

(2) The undertaker must notify the MMO of any vessel being used to carry on any licensed activity listed in this licence on behalf of the undertaker. Such notification must be received by the MMO no less than 24 hours (or such other timescale as agreed with the MMO) before the commencement of the licensed activity. Notification must include the master's name, vessel type, vessel IMO number and vessel owner or operating company.

(3) Any changes to the details provided under sub-paragraphs (1) and (2) must be notified to the MMO at least 24 hours (or such other timescale as agreed with the MMO) before the agent, contractor or vessel engages in the licensed activities.

(4) The undertaker must ensure that a copy of this licence and any subsequent revisions or amendments has been provided to any agents, contractors, subcontractors or vessels that will carry on any licensed activities on behalf of the undertaker prior to them engaging in the licensed activities.

Pre-construction monitoring and surveys

14.—(1) The undertaker must, in discharging condition 9(1)(c) submit a monitoring plan or plans in accordance with the in principle monitoring plan for written approval by the MMO in consultation with the relevant statutory nature conservation body, which must contain details of proposed pre-construction monitoring and surveys, including methodologies and timings.

(2) The pre-construction survey proposals submitted under sub-paragraph (1) must be in general accordance with the principles set out in the in principle monitoring plan and must specify each survey's objectives and explain how it will assist in either informing a useful and valid comparison with the post-construction position or will enable the validation or otherwise of key predictions in the environmental statement.

(3) The pre-construction survey proposals referred to in sub-paragraph (1) must have due regard to, but not be limited to, the need to—

- (a) undertake a swath-bathymetry survey to IHO Order 1a standard that meets the requirements of MGN654 and its annexes, and side scan sonar, of the area(s) within the Order limits in which it is proposed to carry out construction works.

(4) The undertaker must carry out the surveys specified within the monitoring plan or plans in accordance with that plan or plans.

Construction monitoring

15.—(1) The undertaker must, in discharging condition 9(1)(c), submit details (which accord with the in principle monitoring plan) for approval by the MMO in consultation with the relevant statutory nature conservation body of any proposed construction monitoring, including methodologies and timings, to be carried out during the construction of the authorised project. The monitoring proposals must specify each monitoring proposal's objectives.

(2) In the event that driven or part-driven pile foundations are proposed, such monitoring must include measurements of underwater sound generated by the installation of the first four piled foundations of each piled foundation type to be installed unless the MMO otherwise agrees.

(3) The undertaker must carry out the monitoring approved under sub-paragraph (1), including any further underwater sound monitoring required by the MMO, and provide the agreed reports in the agreed format in accordance with the agreed timetable.

(4) The results of the initial underwater sound measurements monitored in accordance with sub-paragraph (2) must be provided to the MMO within six weeks of the end of piling of the first four piled foundations. The assessment of this report by the MMO will determine whether any further underwater sound monitoring is required. If, in the reasonable opinion of the MMO in consultation with the relevant statutory nature conservation body, the assessment shows significantly different impacts to those assessed in the environmental statement or failures in mitigation, all piling activity must cease until an update to the marine mammal mitigation protocol and further monitoring requirements have been agreed.

(5) The undertaker must carry out the surveys specified in the monitoring plan approved under condition 9(1)(c) in accordance with that plan, including any further underwater sound monitoring required by the MMO under sub-paragraph (4).

(6) Construction monitoring must include vessel traffic monitoring in accordance with the in principle monitoring plan, including the provision of reports on the results of that monitoring at the end of each year of the construction period to the MMO, MCA and Trinity House.

(7) In the event that piled foundations are proposed to be used, the details submitted in accordance with the marine mammal mitigation protocol must include proposals for monitoring marine mammals to ensure the ongoing efficacy of the marine mammal mitigation protocol.

Post-construction monitoring

16.—(1) The undertaker must, in discharging condition 9(1)(c) submit details (which accord with the in principle monitoring plan) for approval by the MMO in consultation with the relevant statutory nature conservation body of proposed post-construction monitoring, including methodologies and timings, and a proposed format, content and timings for providing reports on the results.

(2) The monitoring proposals must specify each monitoring proposal's objectives and explain how it will assist in either informing a useful and valid comparison with the pre-construction position or will enable the validation or otherwise of key predictions in the environmental statement (or both).

(3) The post-construction monitoring referred to in sub-paragraph (1) must have due regard to, but not be limited to, the need to—

- (a) undertake a full sea floor coverage swath-bathymetry survey that meets the requirements of MGN654 and its annexes, and side scan sonar, of the area(s) within the Order limits in which construction works were carried out to assess any changes in bedform topography

and such further monitoring or assessment as may be agreed to ensure that cables have been buried or protected; and

- (b) undertake post-construction vessel traffic monitoring in accordance with the in principle monitoring plan, including the provision of reports on the results of that monitoring to the MMO, MCA and Trinity House.

(4) The undertaker must carry out the monitoring agreed under sub-paragraph (1) and provide the agreed reports to the MMO in the agreed format in accordance with the agreed timetable.

(5) Following the installation of cables, details of cable monitoring required under 9(1)(d) must be updated with the results of the post installation surveys. The statement must be implemented until the authorised project is decommissioned and reviewed as specified within the statement, following cable burial surveys, or as instructed by the MMO.

Reporting of scour and cable protection

17.—(1) Not more than four months following completion of the construction of the authorised project, the undertaker must provide the MMO and the relevant statutory nature conservation body with a report setting out details of the cable protection and scour protection used for the authorised project.

(2) The report must include the following information—

- (a) the location of cable protection and scour protection;
- (b) the volume of cable protection and scour protection; and
- (c) any other information relating to the cable protection and scour protection as agreed between the MMO and the undertaker.

Completion of construction

18.—(1) The undertaker must submit a close-out report to the MMO, MCA, Trinity House, the UKHO and the relevant statutory nature conservation body within four months of the date of completion of construction. The close out report must confirm the date of completion of construction and must include the following details—

- (a) the final number of installed wind turbine generators;
- (b) the installed wind turbine generator parameters relevant for ornithological collision risk modelling;
- (c) as built plans;
- (d) latitude and longitude coordinates of the centre point of the location for each wind turbine generator and offshore substation platform provided as Geographical Information System data referenced to WGS84 datum; and
- (e) latitude and longitude coordinates of the inter array cables and platform link cable routes provided as Geographical Information System data referenced to WGS84 datum.

(2) Following completion of construction, no further construction activities can be undertaken under this licence.

Marine Noise Registry

19.—(1) In the event that driven or part-driven pile foundations are proposed to be used as part of the foundation installation, the undertaker must provide the following information to the Marine Noise Registry—

- (a) no less than six months prior to the commencement of each stage of construction of the licensed activities, information on the expected location, start and end dates of impact pile driving to satisfy the Marine Noise Registry's forward look requirements;

- (b) within two weeks after commencement of each stage of construction of the licensed activities, information on the location, start and end dates of impact pile driving to satisfy the Marine Noise Registry’s forward look requirements; and
 - (c) at six month intervals following the commencement of pile driving, information on the locations and dates of impact pile driving to satisfy the Marine Noise Registry’s close out requirements by 7 April for the winter season (October to March inclusive) and 7 October for the summer season (April to September inclusive) or within 12 weeks of completion of impact pile driving, whichever is earlier.
- (2) For the purpose of this condition—
- (a) “Marine Noise Registry” means the database of impulsive noise generating activities in UK seas maintained by the Joint Nature Conservation Committee or any successor database; and
 - (b) “forward look” and “close out” requirements are as set out in the “UK Marine Noise Registry: Information Document, Version 1 (May 2016)” or any updated information document.

Underwater sound management strategy

20.—(1) No piling activities shall commence until an underwater sound management strategy for those activities, which accords with the outline underwater sound management strategy, has been submitted to and approved by the MMO in consultation with the relevant statutory nature conservation body.

(2) Where driven or part-driven pile foundations are proposed to be installed, the underwater sound management strategy submitted under sub-paragraph (1) must include details of the noise reduction measures or noise abatement system (or both) that will be utilised to manage sound from those piling activities.

(3) The underwater sound management strategy must be submitted to the MMO no later than six months prior to the commencement of the relevant activities (or such other timescale as agreed with the MMO).

(4) No piling activities associated with the authorised development shall be undertaken between 15 February and 31 March (inclusive), unless—

- (a) such activities are deemed necessary by the undertaker during this period;
- (b) any additional mitigation requirements for such activities are included in an underwater sound management strategy approved by the MMO under paragraph (1); and
- (c) such activities are thereafter undertaken with the additional mitigation requirements identified and approved by the MMO under sub-paragraph (3)(b).

(5) The piling activities must be carried out in accordance with the approved underwater sound management strategy for the duration of such activities.

Deployment of new cable protection and scour protection

21. Any cable protection and scour protection (other than the replenishment or replacement of existing cable protection or scour protection) authorised under this licence must be deployed within ten years from the date on which operation of the authorised project commences unless otherwise agreed by the MMO.

SCHEDULE 7

Article 18

Compensation measures: Morecambe Bay and Duddon Estuary Special Protection Area and Ribble and Alt Estuaries Special Protection Area

1. In this part—

“construction of a mammalian predator-proof exclusion fence and mammalian predator removal measure” means the measure to construct a mammalian predator-proof exclusion fence and removal of mammalian predators within a fenced enclosure at key lesser black-backed gull nesting site(s);

“Defra” means the Department for Environment, Food and Rural Affairs;

“habitat management measure” means the measure to manage and improve the vegetation and scrub habitat for nesting lesser black-backed gulls at key lesser black-backed gull nesting site(s);

“LBBGCSG” means the Lesser Black-Backed Gull Compensation Steering Group;

“lesser black-backed gull CIMP” means a lesser black-backed gull compensation implementation and monitoring plan for the delivery of a lesser black-backed gull compensation measure to compensate for the predicted loss of lesser black-backed gull from the MBDE and RAE as a result of the authorised development;

“lesser black-backed gull compensation measure” means the construction of a mammalian predator-proof exclusion fence and mammalian predator removal measure or the habitat management measure;

“MBDE” means the site designated as the Morecambe Bay and Duddon Estuary Special Protection Area;

“outline compensation implementation and monitoring plan” means the document certified as the outline compensation implementation and monitoring plan for the purposes of this Order under article 12 (certification of documents and plans, etc.);

“RAE” means the site designated as the Ribble and Alt Estuaries Special Protection Area;

“relevant planning authority” means the planning authority in whose area the lesser black-backed gull compensation measure is located;

“strategic compensation fund” means any fund established by Defra or a Government body for the purpose of implementing strategic compensation measures or any equivalent fund established for that purpose; and

“strategic compensation owner” means the Government body with the responsibility to manage the strategic compensation fund.

2.—(1) No later than six months prior to the commencement of the authorised development, the undertaker must submit to the Secretary of State for approval a scheme demonstrating either:

- (a) its ability to provide project-alone lesser black-backed gull compensation in line with paragraph 4, 5 and 6 of this Schedule; or
- (b) it is unable to provide project-alone lesser black-backed gull compensation in line with paragraph 4, 5 and 6 of this Schedule, giving reasons for this.

(2) If the Secretary of State is content that the undertaker is unable to provide project-alone lesser black-backed gull compensation in line with paragraph 4, 5 and 6 of this Schedule, then the applicant must provide compensation through a contribution to the strategic compensation fund.

(3) Paragraphs 4, 5 and 6 of this Schedule shall not apply in the event that a project-alone lesser black-backed gull compensation measure is to be delivered.

(4) Paragraphs 7 to 13 of this Schedule shall not apply in the event that compensation is being provided through a contribution to the strategic compensation fund.

3. The authorised development may not be commenced until a plan for the work of the LBBGCSG has been submitted to and approved by the Secretary of State. Such a plan must include—

- (a) terms of reference for the LBBGCSG;
- (b) details of the membership of the LBBGCSG, which must include the relevant statutory nature conservation body and, where appropriate, the MMO or the relevant planning authority as core members;

- (c) details of the proposed schedule of meetings, timetable for preparation of the lesser black-backed gull CIMP and reporting and review periods, or details of the schedule of meetings to agree contributions to the strategic compensation fund; and
- (d) the dispute resolution mechanism.

4.—(1) The undertaker must agree a ratio/value of contribution with the strategic compensation owner, in consultation with the statutory nature conservation body and the LBBGCSG.

(2) Unless otherwise agreed with the strategic compensation owner, the ratio/value must include the provision of—

- (a) the required contribution to compensate for the reasonable worst-case scenario of adverse effect on the MBDE and RAE;
- (b) the required contribution to monitoring of the compensation undertaken under the strategic compensation fund;
- (c) the required contribution to provide for any adaptive management measures for the compensation undertaken under the strategic compensation fund;
- (d) the timing of any required contribution to ensure compensation is either provided ahead of construction or to a sufficiently high ratio to allow for construction prior to implementation of the compensation;
- (e) the required contribution for the ongoing maintenance of the compensation undertaken under the strategic compensation fund; and
- (f) the required contribution for any decommissioning of the compensation undertaken under the strategic compensation fund.

5. Prior to the commencement of any works, the undertaker must provide details of the contribution to the strategic compensation fund agreed under paragraph 4 to the Secretary of State for approval.

6. The undertaker must provide the contribution to the strategic compensation fund in accordance with the agreement approved by the Secretary of State under paragraph 5.

7. Following consultation with the LBBGCSG the lesser black-backed gull CIMP must be submitted to the Secretary of State for approval, in consultation with the relevant statutory nature conservation body and, where appropriate, the MMO or the relevant local planning authority.

8.—(1) The lesser black-backed gull CIMP must be based on the strategy for lesser black-backed gull compensation set out in the outline compensation implementation and monitoring plan and must include—

- (a) details of the location(s) where the lesser black-backed gull compensation measure will be delivered;
- (b) details of how any necessary land access rights, licences and approvals have or will be obtained;
- (c) an implementation timetable for delivery of the lesser black-backed gull compensation measure;
- (d) recording of LBBGCSG consultations;
- (e) details of the proposed ongoing monitoring and reporting on the effectiveness of the lesser black-backed gull compensation measure, including: survey methods; success criteria; adaptive management measures; timescales for the monitoring and monitoring reports to be delivered; and details of the mechanism to determine the need for any alternative compensation measures or implementation of adaptive management measures (or both); and
- (f) provision for annual reporting to the Secretary of State.

9. The undertaker must implement the measures set out in the lesser black-backed gull CIMP approved by the Secretary of State, unless otherwise agreed by the Secretary of State in

consultation with the relevant statutory nature conservation body and, where appropriate, the MMO or the relevant local planning authority.

10. No wind turbine generator forming part of Work No. 1 may commence operation until the lesser black-backed gull compensation measure has been implemented for four breeding seasons, unless commencement of operation at an earlier date is approved by the Secretary of State. For the purposes of this paragraph each breeding season is 1 March to 30 September of each year inclusive.

11. The undertaker must notify the Secretary of State of the implementation of the lesser black-backed gull compensation measure.

12. The lesser black-backed gull compensation measure as approved in the lesser black-backed gull CIMP must be maintained by the undertaker (or at its expense) for the operational lifetime of the wind turbine generators erected under Work No.1.

13. The lesser black-backed gull CIMP approved under this Schedule includes any amendments that may subsequently be approved by the Secretary of State. Any amendments to or variations of the approved lesser black-backed gull CIMP must be in accordance with the principles set out in the outline compensation implementation and monitoring plan.

7

SCHEDULE 8

Article 12

Documents to be certified

The following documents, including those listed in Table 6, are the list referred to in article 12 (certification of documents and plans, etc.)—

Table 6

<i>Document Reference Number</i>	<i>Planning Inspectorate Reference</i>	<i>Document Name</i>	<i>Revision</i>	<i>Date</i>
2.1	APP-005	Offshore Location Plan	01	May 2024
2.3	APP-007	Offshore Works Plan	01	May 2024
2.4	APP-008	Offshore Order Limits and Grid Coordinates Plan	01	May 2024
2.5	APP-009	Indicative Extent of Marine Licence	01	May 2024
2.6	AS-003	Offshore Statutory and Non-Statutory Nature Conservation Sites	02	July 2024
2.7	APP-011	Historic Environment Plan	01	May 2024
4.3	REP5a-007	Design Statement	04	April 2025
Habitats Regulations Assessment Report				
4.9	REP5a-009	Report to Inform Appropriate Assessment	05	April 2025
4.11	REP5a-011	Habitats Regulations Assessment Without Prejudice Derogation Case	04	April 2025
4.11.1	REP5a-013	Outline Compensation Implementation and Monitoring Plan	02	April 2025
9.37	REP5a-046	Habitats Regulations Assessment Without Prejudice Derogation Case (RTD)	03	April 2025
9.38	REP5a-048	Outline Compensation Implementation and Monitoring Plan – Red-throated diver	02	April 2025
Environmental Statement				
5.1.1	REP1-020	Chapter 1 Introduction	02	November

				2024
5.1.2	APP-039	Chapter 2 Need for the Project	01	May 2024
5.1.3	APP-040	Chapter 3 Policy and Legislation	01	May 2024
5.1.4	APP-041	Chapter 4 Site Selection and Assessment of Alternatives	01	May 2024
5.1.5	REP1-022	Chapter 5 Project Description	02	November 2024
5.1.6	APP-043	Chapter 6 EIA Methodology	01	May 2024
5.1.7	REP5a-015	Chapter 7 Marine Geology Oceanography and Physical Processes	05	April 2025
5.1.8	REP2-010	Chapter 8 Marine Sediment and Water Quality	03	December 2024
5.1.9	REP5a-017	Chapter 9 Benthic Ecology	04	April 2025
5.1.10	REP3-016	Chapter 10 Fish and Shellfish Ecology	03	January 2025
5.1.11	REP5a-019	Chapter 11 Marine Mammals	05	April 2025
5.1.12	REP6-009	Chapter 12 Offshore Ornithology	04	April 2025
5.1.13	REP3-018	Chapter 13 Commercial Fisheries	02	January 2025
5.1.14	REP3-020	Chapter 14 Shipping and Navigation	02	January 2025
5.1.15	REP3-022	Chapter 15 Marine Archaeology and Cultural Heritage	03	January 2025
5.1.16	REP3-024	Chapter 16 Civil and Military Aviation and Radar	03	January 2025
5.1.17	REP1-038	Chapter 17 Infrastructure and Other Users	02	November 2024
5.1.18	REP3-026	Chapter 18 Seascape Landscape and Visual Impact Assessment.	02	January 2025
5.1.19	REP6-011	Chapter 19 Human Health	03	April 2025
5.1.20	APP-057	Chapter 20 Socio-economics Tourism and Recreation	01	May 2024
5.1.21	REP6-013	Chapter 21 Climate Change	03	April 2025
5.1.22	APP-059	Chapter 22 Traffic and Transport	01	May 2024
5.1.23	REP1-042	Chapter 23 Summary_Generation and Transmission Assets Assessment	02	November 2024
5.2.6.1	APP-061	Appendix 6.1 CEA Project Long List	01	May 2024
5.2.7.1	APP-062	Appendix 7.1 Offshore Geophysical Survey	01	May 2024
5.2.9.1	APP-063	Appendix 9.1 Benthic Characterisation Survey	01	May 2024
5.2.9.2	APP-064	Appendix 9.2 Marine Evidence-based Sensitivity Assessment	01	May 2024
5.2.11.1	REP4-013	Appendix 11.1 Underwater Noise Assessment	02	February 2025
5.2.11.2	REP4-015	Appendix 11.2 Marine Mammal Information and Survey Data	04	February 2025
5.2.11.3	REP4-017	Appendix 11.3 Marine Mammal Unexploded Ordnance Assessment	03	February 2025
5.2.11.4	REP4-019	Appendix 11.4 Marine Mammal CEA Project Screening	03	February 2025
5.2.11.5	APP-069	Appendix 11.5 Marine Mammal Consultation Responses	01	May 2024
5.2.12.1	APP-070	Appendix 12.1 Offshore Ornithology Technical Report	01	May 2024
5.2.12.2	APP-071	Appendix 12.2 Aerial Survey Two Year Report March 2021 to February	01	May 2024

		2023		
5.2.13.1	REP2-014	Appendix 13.1 Commercial Fisheries Technical Report	02	December 2024
5.2.14.1	REP3-028	Appendix 14.1 Navigation Risk Assessment	02	January 2025
5.2.14.2	APP-074	Appendix 14.2 Cumulative Regional Navigation Risk Assessment	01	May 2024
5.2.15.1	APP-075	Appendix 15.1 Archaeological Assessment of Geophysical and Hydrographic Data	01	May 2024
5.2.15.2	APP-076	Appendix 15.2 Seismic Data Review	01	May 2024
5.2.15.3	REP3-030	Appendix 15.3 Settings Assessment	02	May 2024
5.2.16.1	REP1-050	Appendix 16.1 Airspace Analysis and Radar Modelling	02	November 2024
5.2.16.2	REP3-032	Appendix 16.2 Blackpool Instrument Flight Procedure Safeguarding Report	02	January 2025
5.2.16.3	APP-080	Appendix 16.3 Other Instrument Flight Procedure Assessments	01	May 2024
5.2.17.1	APP-081	Appendix 17.1 Helicopter Access Study	01	May 2024
5.2.17.2	REP3-034	Appendix 17.2 Radar Early Warning System Technical Report	02	May 2024
5.2.18.1	APP-083	Appendix 18.1 SLVIA Methodology	01	May 2024
5.2.18.2	REP1-052	Appendix 18.2 SLVIA Preliminary Assessment	02	November 2024
5.2.18.3	APP-085	Appendix 18.3 SLVIA Viewpoint Assessment	01	May 2024
5.2.20.1	APP-086	Appendix 20.1 Offshore Windfarm Economic Impact Assessment Methodology	01	May 2024
5.2.21.1	REP5-018	Appendix 21.1 Greenhouse Gas Assessment Methodology	02	March 2025
5.3.1	APP-088	Chapter 1 Introduction Figures	01	May 2024
5.3.4	APP-089	Chapter 4 Site Selection and Assessment of Alternatives Figures	01	May 2024
5.3.5	APP-090	Chapter 5 Project Description Figures	01	May 2024
5.3.7	REP3-036	Chapter 7 Marine Geology Oceanography and Physical Processes Figures	03	January 2025
5.3.8	APP-092	Chapter 8 Marine Sediment and Water Quality Figures	01	May 2024
5.3.9	APP-093	Chapter 9 Benthic Ecology Figures	01	May 2024
5.3.10	PD1-008	Chapter 10 Fish and Shellfish Ecology Figures	02	October 2024
5.3.11	APP-095	Chapter 11 Marine Mammals Figures	01	May 2024
5.3.12	APP-096	Chapter 12 Offshore Ornithology Figures	01	May 2024
5.3.13	APP-097	Chapter 13 Commercial Fisheries Figures	01	May 2024
5.3.14	APP-098	Chapter 14 Shipping and Navigation Figures	01	May 2024
5.3.15	APP-099	Chapter 15 Marine Archaeology and Cultural Heritage Figures	01	May 2024
5.3.15.1	APP-100	Appendix 15.3 Generation Assets Setting Assessment_Cultural Heritage	01	May 2024

		Viewpoint 1		
5.3.15.2	APP-101	Appendix 15.3 Generation Assets Setting Assessment_Cultural Heritage	01	May 2024
		Viewpoint 2		
5.3.15.3	APP-102	Appendix 15.3 Generation Assets Setting Assessment_Cultural Heritage	01	May 2024
		Viewpoint 3		
5.3.15.4	APP-103	Appendix 15.3 Generation Assets Setting Assessment_Cultural Heritage	01	May 2024
		Viewpoint 4		
5.3.16	REP3-037	Chapter 16 Civil and Military Aviation and Radar Figures	02	January 2025
5.3.17	APP-105	Chapter 17 Infrastructure and Other Users Figures	01	May 2024
5.3.18.1	APP-106	Chapter 18 SLVIA Figures_Part 1 of 34	01	May 2024
5.3.18.2	REP3-038	Chapter 18 SLVIA Figures_Part 2 of 34	02	January 2025
5.3.18.3	APP-108	Chapter 18 SLVIA Figures_Part 3 of 34	01	May 2024
5.3.18.4	APP-109	Chapter 18 SLVIA Figures_Part 4 of 34	01	May 2024
5.3.18.5	APP-110	Chapter 18 SLVIA Figures_Part 5 of 34	01	May 2024
5.3.18.6	APP-111	Chapter 18 SLVIA Figures_Part 6 of 34	01	May 2024
5.3.18.7	APP-112	Chapter 18 SLVIA Figures_Part 7 of 34	01	May 2024
5.3.18.8	APP-113	Chapter 18 SLVIA Figures_Part 8 of 34	01	May 2024
5.3.18.9	APP-114	Chapter 18 SLVIA Figures_Part 9 of 34	01	May 2024
5.3.18.10	APP-115	Chapter 18 SLVIA Figures_Part 10 of 34	01	May 2024
5.3.18.11	APP-116	Chapter 18 SLVIA Figures_Part 11 of 34	01	May 2024
5.3.18.12	APP-117	Chapter 18 SLVIA Figures_Part 12 of 34	01	May 2024
5.3.18.13	APP-118	Chapter 18 SLVIA Figures_Part 13 of 34	01	May 2024
5.3.18.14	APP-119	Chapter 18 SLVIA Figures Part 14 of 34	01	May 2024
5.3.18.15	APP-120	Chapter 18 SLVIA Figures_Part 15 of 34	01	May 2024
5.3.18.16	APP-121	Chapter 18 SLVIA Figures_Part 16 of 34	01	May 2024
5.3.18.17	APP-122	Chapter 18 SLVIA Figures_Part 17 of 34	01	May 2024
5.3.18.18	APP-123	Chapter 18 SLVIA Figures_Part 18 of 34	01	May 2024
5.3.18.19	APP-124	Chapter 18 SLVIA Figures_Part 19 of 34	01	May 2024
5.3.18.20	APP-125	Chapter 18 SLVIA Figures_Part 20 of 34	01	May 2024
5.3.18.21	APP-126	Chapter 18 SLVIA Figures_Part 21 of 34	01	May 2024

		34		
5.3.18.22	APP-127	Chapter 18 SLVIA Figures_Part 22 of 34	01	May 2024
5.3.18.23	APP-128	Chapter 18 SLVIA Figures_Part 23 of 34	01	May 2024
5.3.18.24	APP-129	Chapter 18 SLVIA Figures_Part 24 of 34	01	May 2024
5.3.18.25	APP-130	Chapter 18 SLVIA Figures_Part 25 of 34	01	May 2024
5.3.18.26	APP-131	Chapter 18 SLVIA Figures_Part 26 of 34	01	May 2024
5.3.18.27	APP-132	Chapter 18 SLVIA Figures_Part 27 of 34	01	May 2024
5.3.18.28	APP-133	Chapter 18 SLVIA Figures_Part 28 of 34	01	May 2024
5.3.18.29	APP-134	Chapter 18 SLVIA Figures_Part 29 of 34	01	May 2024
5.3.18.30	APP-135	Chapter 18 SLVIA Figures_Part 30 of 34	01	May 2024
5.3.18.31	APP-136	Chapter 18 SLVIA Figures_Part 31 of 34	01	May 2024
5.3.18.32	APP-137	Chapter 18 SLVIA Figures_Part 32 of 34	01	May 2024
5.3.18.33	APP-138	Chapter 18 SLVIA Figures_Part 33 of 34	01	May 2024
5.3.18.34	APP-139	Chapter 18 SLVIA Figures_Part 34 of 34	01	May 2024
5.3.19	APP-140	Chapter 19 Human Health Figures	01	May 2024
5.3.20	APP-141	Chapter 20 Socio-economics Tourism and Recreation Figures	01	May 2024
5.3.23	APP-142	Chapter 23 Summary_Generation and Transmission Assets Assessment Figures	01	May 2024
5.4	APP-143	Scoping Report and Scoping Opinion	01	May 2024
5.5	AS-016	Schedule of Mitigation	07	April 2025
9.44	REP3-073	Impact Assessment of Proposed Morecambe Bay Windfarm Against Selected Instrument Flight Procedures	01	January 2025
9.66	REP6-037	VHF, UHF, and DF Technical Safeguarding Assessment	02	April 2025
Outline plans and documents				
6.2	REP5a-023	Outline Project Environmental Management Plan	05	April 2025
6.3	REP5a-025	Outline Fisheries Liaison and Co-Existence Plan	05	April 2025
6.4	REP6-017	In Principle Monitoring Plan	06	April 2025
6.5	REP6-019	Draft Marine Mammal Mitigation Protocol	06	April 2025
6.6	REP5-030	Outline Offshore Operation and Maintenance Plan	03	March 2025
6.7	REP5-032	Outline Port Access and Transport Plan	02	March 2025
6.8	REP5-034	Outline Scour Protection and Cable Protection Plan	03	March 2025
6.9	REP5a-031	Outline Vessel Traffic Management	05	April 2025

6.10	REP5-038	Plan Outline Offshore Written Scheme of Investigation	02	March 2025
6.11	REP5-040	Outline Skills and Employment Plan	02	March 2025
9.32	REP5a-042	Outline Underwater Sound Management Strategy	04	April 2025
9.49	REP6-034	Outline Construction Method Statement	03	April 2025

EXPLANATORY NOTE

(This note is not part of the Order)

This Order grants development consent for, and authorises the construction, operation and maintenance of, an offshore wind farm generating station located approximately 30km from the Lancashire coast of England, together with associated development. This Order imposes requirements in connection with the development.

A copy of the plans referred to in this Order and certified in accordance with article 12 (certification of documents and plans, etc.) may be inspected free of charge at the offices of Morecambe Offshore Windfarm Ltd (company registration number: SC734062) at Hobart House, 80 Hanover Street, Edinburgh, EH2 1EL.