



# White Cross Offshore Windfarm The Applicant's Response to Comments from the Royal Society for the Protection of Birds

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## Glossary of Acronyms

<b>Acronym</b>	<b>Definition</b>
<b>AEZ</b>	Archaeological Exclusion Zone
<b>ADBA</b>	Archaeological Desk Based Assessment
<b>AfL</b>	Agreement for Lease
<b>AIS</b>	Automatic Identification System
<b>AOD</b>	Above Ordnance Datum
<b>AONB</b>	Area of Outstanding Natural Beauty
<b>AoS</b>	Area of Search
<b>AQMA</b>	Air Quality Management Area
<b>ATBA</b>	Area To Be Avoided
<b>BAS</b>	Burial Assessment Study
<b>BEIS</b>	Department for Business, Energy and Industrial Strategy
<b>BGS</b>	British Geological Society
<b>BMAPA</b>	British Marine Aggregate Producers Association
<b>BSI</b>	British Standards Institution
<b>CAA</b>	Civil Aviation Authority
<b>CCC</b>	Committee on Climate Change
<b>CEMP</b>	Construction Environmental Management Plan
<b>CfD</b>	Contracts for Difference
<b>CEA</b>	Cumulative Effect Assessment
<b>CIEEM</b>	Chartered Institute of Ecology and Environmental Management
<b>CIRIA</b>	Construction Industry Research and Information Association
<b>CoCP</b>	Code of Construction Practice
<b>DCO</b>	Development Consent Order
<b>DECC</b>	Department for Energy and Climate Change
<b>Defra</b>	Department for Environment, Food and Rural Affairs
<b>EEA</b>	European Economic Area
<b>EEZ</b>	Economic Exclusion Zone
<b>EIA</b>	Environmental Impact Assessment
<b>EMF</b>	Electromagnetic Frequency
<b>EPS</b>	European Protect Species
<b>ERCoP</b>	Emergency Response Co-operation Plan
<b>ES</b>	Environmental Statement
<b>EU</b>	European Union
<b>FWMA</b>	The Flood and Water Management Act
<b>GEART</b>	Guidelines for the Environmental Assessment of Road Traffic
<b>GHG</b>	Greenhouse Gas
<b>GIS</b>	Geographical Information System

<b>Acronym</b>	<b>Definition</b>
<b>GPS</b>	Global Positioning System
<b>GT</b>	Gross Tonnage
<b>ha</b>	Hectare
<b>HDD</b>	Horizontal Directional Drilling
<b>HMSO</b>	Her Majesty's Stationery Office
<b>HRA</b>	Habitats Regulation Assessment
<b>IAQM</b>	Institute of Air Quality Management
<b>ICES</b>	International Council for the Exploration of the Sea
<b>ICP</b>	Independent Connection Provider
<b>IEMA</b>	Institute of Environmental Management and Assessment
<b>IPC</b>	Infrastructure Planning Commission
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>IUCN Red List</b>	The International Union for Conservation of Nature's Red List of Threatened Species
<b>JNCC</b>	Joint Nature Conservancy Council
<b>km</b>	Kilometre
<b>Km<sup>2</sup></b>	Square kilometre
<b>LAQM</b>	Local Air Quality Management
<b>LCA</b>	Landscape Character Area
<b>LCT</b>	Landscape Character Type
<b>LNR</b>	Local Nature Reserve
<b>LPA</b>	Local Planning Authority
<b>LoWS</b>	Local Wildlife Site
<b>m</b>	Metre
<b>MAIB</b>	Marine Accident Investigation Branch
<b>MCA</b>	Maritime and Coastguard Agency
<b>MCZ</b>	Marine Conservation Zone
<b>MMO</b>	Marine Management Organisation
<b>MoD</b>	Ministry of Defence
<b>MW</b>	Megawatts
<b>NASA</b>	National Aeronauts and Space Administration
<b>NE</b>	Natural England
<b>NGC</b>	National Grid Company
<b>nm</b>	Nautical Mile
<b>NNR</b>	National Nature Reserve
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>NPS</b>	National Policy Statement
<b>NPPG</b>	The National Planning Practice Guidance
<b>NtM</b>	Notice to Mariners

<b>Acronym</b>	<b>Definition</b>
<b>OFTO</b>	Offshore Transmission Owner (OFTO)
<b>ONS</b>	Office for National Statistics
<b>OS</b>	Ordnance Survey
<b>OTNR</b>	Offshore Transmission Network Review
<b>OWL</b>	Offshore Wind Ltd
<b>PAD</b>	Protocol for Archaeological Discoveries
<b>PEXA</b>	Practice and Exercise Area
<b>PINS</b>	Planning Inspectorate
<b>PPG</b>	Pollution Prevention Guidelines
<b>PPG</b>	Planning Practice Guidance
<b>PRoW</b>	Public Right of Way
<b>RIAA</b>	Report to Inform an Appropriate Assessment
<b>RIGS</b>	Regionally Important Geological Sites
<b>RNLI</b>	Royal National Lifeboat Association
<b>RSPB</b>	Royal Society for the Protection of Birds
<b>RYA</b>	Royal Yachting Association
<b>SAC</b>	Special Area of Conservation
<b>SAR</b>	Search and Rescue
<b>SCI</b>	Site of Community Importance
<b>SCOS</b>	Special Committee on Seals
<b>SLVIA</b>	Seascape, Landscape and Visual Impact Assessment
<b>SMRU</b>	Sea Mammal Research Unit
<b>SNCB</b>	Statutory Nature Conservation Body
<b>SOLAS</b>	Safety of Life at Sea
<b>SPA</b>	Special Protection Area
<b>SPZ</b>	Source Protection Zone
<b>SSSI</b>	Site of Special Scientific Interest
<b>TCE</b>	The Crown Estate
<b>TJB</b>	Transition Joint Bay
<b>TSS</b>	Traffic Separation Scheme
<b>TTS</b>	Temporary Threshold Shift
<b>UK</b>	United Kingdom
<b>UKC</b>	Under Keel Clearance
<b>UKHO</b>	UK Hydrographic Office
<b>UXO</b>	Unexploded Ordnance
<b>VMS</b>	Vessel Monitoring Systems
<b>WTG</b>	Wind Turbine Generator
<b>WWT</b>	Wildfowl and Wetlands Trust

Acronym	Definition
<b>ZoI</b>	Zone of Influence
<b>ZTV</b>	Zone of Theoretical Visibility

## Glossary of Terminology

Defined Term	Description
<b>Agreement for Lease</b>	An Agreement for Lease (AfL) is a non-binding agreement between a landlord and prospective tenant to grant and/or to accept a lease in the future. The AfL only gives the option to investigate a site for potential development. There is no obligation on the developer to execute a lease if they do not wish to.
<b>Applicant</b>	Offshore Wind Limited
<b>Cumulative effects</b>	The effect of the Project taken together with similar effects from a number of different projects, on the same single receptor/resource. Cumulative Effects are those that result from changes caused by other past, present or reasonably foreseeable actions together with the Project.
<b>Department for Business, Energy and Industrial Strategy (BEIS)</b>	Government department that is responsible for business, industrial strategy, science and innovation and energy and climate change policy and consent under Section 36 of the Electricity Act.
<b>Engineer, Procure, Construct and Install</b>	A common form of contracting for offshore construction. The contractor takes responsibility for a wide scope and delivers via own and subcontract resources.
<b>Environmental Impact Assessment (EIA)</b>	Assessment of the potential impact of the proposed Project on the physical, biological and human environment during construction, operation and decommissioning.
<b>Export Cable Corridor</b>	The area in which the export cables will be laid, either from the Offshore Substation or the inter-array cable junction box (if no offshore substation), to the NG Onshore Substation comprising both the Offshore Export Cable Corridor and Onshore Export Cable Corridor.
<b>Front end engineering and design</b>	Front-end engineering and design (FEED) studies address areas of windfarm system design and develop the concept of the windfarm in advance of procurement, contracting and construction.
<b>Generation Assets</b>	The infrastructure of the Project related to the generation of electricity within the windfarm site, including wind turbine generators, substructures, mooring lines, seabed anchors and inter-array cables
<b>High Voltage Alternating Current</b>	High voltage alternating current is the bulk transmission of electricity by alternating current (AC), whereby the flow of electric charge periodically reverses direction.
<b>High Voltage Direct Current</b>	High voltage direct current is the bulk transmission of electricity by direct current (DC), whereby the flow of electric charge is in one direction.
<b>In-combination effects</b>	In-combination effects are those effects that may arise from the development proposed in combination with other plans and projects proposed/consented but not yet built and operational.



Defined Term	Description
<b>Jointing bay</b>	Underground structures constructed at regular intervals along the Onshore Export Cable Corridor to join sections of cable and facilitate installation of the cables into the buried ducts
<b>Landfall</b>	Where the offshore export cables come ashore
<b>Link boxes</b>	Underground chambers or above ground cabinets next to the cable trench housing electrical earthing links
<b>Mean high water springs</b>	The average tidal height throughout the year of two successive high waters during those periods of 24 hours when the range of the tide is at its greatest.
<b>Mean low water springs</b>	The average tidal height throughout a year of two successive low waters during those periods of 24 hours when the range of the tide is at its greatest.
<b>Mean sea level</b>	The average tidal height over a long period of time.
<b>Mitigation</b>	<p>Mitigation measures have been proposed where the assessment identifies that an aspect of the development is likely to give rise to significant environmental impacts, and discussed with the relevant authorities and stakeholders in order to avoid, prevent or reduce impacts to acceptable levels.</p> <p>For the purposes of the EIA, two types of mitigation are defined:</p> <ul style="list-style-type: none"> <li>• Embedded mitigation: consisting of mitigation measures that are identified and adopted as part of the evolution of the project design, and form part of the project design that is assessed in the EIA</li> <li>• Additional mitigation: consisting of mitigation measures that are identified during the EIA process specifically to reduce or eliminate any predicted significant impacts. Additional mitigation is therefore subsequently adopted by OWL as the EIA process progresses.</li> </ul>
<b>National Grid Onshore Substation</b>	Part of an electrical transmission and distribution system. Substations transform voltage from high to low, or the reverse by means of the electrical transformers.
<b>National Grid Connection Point</b>	The point at which the White Cross Offshore Windfarm connects into the distribution network at East Yelland substation and the distributed electricity network. From East Yelland substation electricity is transmitted to Alverdiscott where it enters the national transmission network.
<b>Offshore Development Area</b>	The Windfarm Site (including wind turbine generators, substructures, mooring lines, seabed anchors, inter-array cables and Offshore Substation Platform (as applicable)) and Offshore Export Cable Corridor to MHSW at the Landfall. This encompasses the part of the project that is the focus of this application and Environmental Statement and the parts of the project consented under Section 36 of the Electricity Act and the Marine and Coastal Access Act 2009
<b>Offshore Export Cables</b>	The cables which bring electricity from the Offshore Substation Platform or the inter-array cables junction box to the Landfall

<b>Defined Term</b>	<b>Description</b>
<b>Offshore Export Cable Corridor</b>	The proposed offshore area in which the export cables will be laid, from Offshore Substation Platform or the inter-array cable junction box to the Landfall
<b>Offshore Infrastructure</b>	All of the offshore infrastructure including wind turbine generators, substructures, mooring lines, seabed anchors, Offshore Substation Platform and all cable types (export and inter-array). This encompasses the infrastructure that is the focus of this application and Environmental Statement and the parts of the project consented under Section 36 of the Electricity Act and the Marine and Coastal Access Act 2009
<b>the Offshore Project</b>	The Offshore Project for the offshore Section 36 and Marine Licence application includes all elements offshore of MHWS. This includes the infrastructure within the windfarm site (e.g. wind turbine generators, substructures, mooring lines, seabed anchors, inter-array cables and Offshore Substation Platform (as applicable)) and all infrastructure associated with the export cable route and landfall (up to MHWS) including the cables and associated cable protection (if required).
<b>Offshore Substation Platform</b>	A fixed structure located within the Windfarm Site, containing electrical equipment to aggregate the power from the wind turbines and convert it into a more suitable form for export to shore
<b>Offshore Transmission Assets</b>	The aspects of the project related to the transmission of electricity from the generation assets including the Offshore Substation Platform (as applicable)) or offshore junction box, Offshore Cable Corridor to MHWS at the landfall
<b>Offshore Transmission Owner</b>	An OFTO, appointed in UK by Ofgem (Office of Gas and Electricity Markets), has ownership and responsibility for the transmission assets of an offshore windfarm.
<b>Onshore Development Area</b>	The onshore area above MLWS including the underground onshore export cables connecting to the White Cross Onshore Substation and onward to the NG grid connection point at East Yelland. The onshore development area will form part of a separate Planning application to the Local Planning Authority (LPA) under the Town and Country Planning Act 1990.
<b>Onshore Export Cables</b>	The cables which bring electricity from MLWS at the Landfall to the White Cross Onshore Substation and onward to the NG grid connection point at East Yelland.
<b>Onshore Export Cable Corridor</b>	The proposed onshore area in which the export cables will be laid, from MLWS at the Landfall to the White Cross Onshore Substation and onward to the NG grid connection point at East Yelland.
<b>Onshore Infrastructure</b>	The combined name for all infrastructure associated with the Project from MLWS at the Landfall to the NG grid connection point at East Yelland. The onshore infrastructure will form part of a separate Planning application to the Local Planning Authority (LPA) under the Town and Country Planning Act 1990
<b>Onshore Transmission Assets</b>	The aspects of the project related to the transmission of electricity from MLWS at the Landfall to the NG grid connection point at East Yelland including the Onshore Export Cable, the White Cross Onshore Substation and onward connection to the NG grid connection point at East Yelland.

<b>Defined Term</b>	<b>Description</b>
<b>the Onshore Project</b>	The Onshore Project for the onshore TCPA application includes all elements onshore of MLWS. This includes the infrastructure associated with the offshore export cable (from MLWS), landfall, onshore export cable and associated infrastructure and new onshore substation (if required).
<b>Offshore Wind Limited</b>	Offshore Wind Ltd (OWL) is a joint venture between Cobra Instalaciones Servicios, S.A., and Flotation Energy Ltd
<b>the Project</b>	the Project is a proposed floating offshore windfarm called White Cross located in the Celtic Sea with a capacity of up to 100MW. It encompasses the project as a whole, i.e. all onshore and offshore infrastructure and activities associated with the Project.
<b>Project Design Envelope</b>	A description of the range of possible elements that make up the Project design options under consideration. The Project Design Envelope, or 'Rochdale Envelope' is used to define the Project for Environmental Impact Assessment (EIA) purposes when the exact parameters are not yet known but a bounded range of parameters are known for each key project aspect.
<b>Safety zones</b>	A marine zone outlined for the purposes of safety around a possibly hazardous installation or works / construction area
<b>Service operation vessel</b>	A vessel that provides accommodation, workshops and equipment for the transfer of personnel to turbine during OMS. Vessels in service today are typically up to 85m long with accommodation for about 60 people.
<b>Transition joint bay</b>	Underground structures at the Landfall that house the joints between the offshore export cables and the onshore export cables
<b>Transition piece</b>	The transition piece includes various functionalities such as access for maintenance, cable connection for the energy of the turbine and the corrosion protection of the entire foundation
<b>White Cross Offshore Windfarm</b>	100MW capacity offshore windfarm including associated onshore and offshore infrastructure
<b>White Cross Onshore Substation</b>	A new substation built specifically for the White Cross project. It is required to ensure electrical power produced by the offshore windfarm is compliant with NG electrical requirements at the grid connection point at East Yelland.
<b>Wind Turbine Generators (WTG)</b>	The wind turbine generators convert wind energy into electrical power. Key components include the rotor blades, nacelle (housing for electrical generator and other electrical and control equipment) and tower. The final selection of project wind turbine model will be made post-consent application
<b>Windfarm Site</b>	The area within which the wind turbines, Offshore Substation Platform and inter-array cables will be present
<b>Works completion date</b>	Date at which construction works are deemed to be complete and the windfarm is handed to the operations team. In reality, this may take place over a period of time.

## 1. Introduction

1. This document provides the Applicant's responses to \*relevant chapter/appendix\* of \*consultee's\* comments.

## 2. \*Relevant Consultee's\* comments on \*relevant chapter/appendix\*

*Table 1: Applicant's responses to XXXX's comments*

ID	Consultee Comments	Applicant Response
<i>Offshore Concerns</i>		
1	<p>Given the location of the proposal which is in close proximity to protected sites (SPAs, SACs and SSSIs) we consider that this project has the potential to cause a likely significant impact on the features of these sites.</p> <p>We have fundamental concerns because the location of this proposal is close to potentially important areas for seabirds and waterbirds, and their food prey. The construction and operation of this project could potentially have a negative impact on the follow sites and their associated features (seabirds) foraging range and food supply:</p> <ul style="list-style-type: none"> <li>• Skomer, Skokholm and the Seas off Pembrokeshire/ Sgomer, Sgogwm a Moroedd Penfro SPA</li> <li>• Grassholm SPA</li> <li>• Isles of Scilly SPA</li> <li>• Great Saltee SPA</li> <li>• Lundy SSSI</li> </ul> <p>The area also potentially falls within the flyway and non-breeding range for critically endangered seabirds and a number of species listed in Annex 1 of the Wild Birds</p>	<p>The Applicant has assessed the potential impacts on the SPAs listed as presented within <b>Section 8</b> of the <b>Report to Inform Appropriate Assessment</b> and concluded that the potential for a significant adverse effect on site integrity could be confidently ruled out for all features. The Applicant also undertook an assessment of Lundy Island SSSI as presented within <b>Section 13.11</b> of <b>Chapter 13 Offshore Ornithology</b>, for which it was concluded that the project would not lead to a significant impact. The Approach to assessment of Lundy SSSI, follows the agreed method discussed with the RSPB during the ETG meeting held on the 24<sup>th</sup> April 2023.</p> <p>The Applicant's approach to identification and evaluation of receptors for inclusion within assessments is presented within <b>Section 13.3.9</b> of <b>Chapter 13 Offshore Ornithology</b>. With respect to all offshore ornithological receptors assessed it was confidently concluded that the project would not lead to a significant adverse impact.</p> <p>The Applicant has considered impacts on prey as presented within <b>Section 13.10.4</b> of <b>Chapter 13</b></p>

ID	Consultee Comments	Applicant Response
	<p>Directive, and therefore subject to special conservation measures or associated with other protected sites (SPAs and SSSIs) in Wales, Ireland, England and Scotland. This includes (although not exhaustive):</p> <ul style="list-style-type: none"> <li>• The Balearic Shearwater, (annex 1 species). The only critically endangered bird that regularly occurs in the UK</li> <li>• Manx Shearwater (Annex 1), European Storm Petrel (Annex 1), Leach's Petrel, Gannet (heavily impacted by bird flu), Sandwich Tern, Lesser Black-backed Gull, Herring Gull, Kittiwake, Arctic Skua, Great Skua (heavily impacted by bird flu), Guillemot, Razorbill, Puffin, Great Northern Diver and Black-throated Diver.</li> </ul> <p>The area also falls within potential spawning and nursery areas for important seabird food prey items which include:</p> <ul style="list-style-type: none"> <li>• sand eel, herring, and sprats</li> </ul>	<p><b>Offshore Ornithology</b>, with further assessments presented within <b>Chapter 10: Benthic and Intertidal Ecology</b> and <b>Chapter 11: Fish and Shellfish Ecology</b>. With respect to the seabird prey items noted it was confidently concluded that the project would not lead to a significant adverse impact.</p>
<i>Potential Impacts</i>		
2	<p>We are concerned that this type of development has the following potential impacts during the construction, operation and or the de-commissioning phases, that needs to be assessed, and mitigated for, where required.</p> <ul style="list-style-type: none"> <li>• Bird strike</li> <li>• Disturbance displacement from feeding, loafing or roosting areas (at sea and on land)</li> <li>• Barrier effect</li> <li>• Damage to habitats that are important to seabirds' food source (fish prey) and waterbirds (inter-tidal)</li> <li>• Pollution</li> <li>• Invasive Non Native Species (mammalian predators)</li> <li>• Cumulative effects</li> </ul>	<p>The Applicant has considered and, where appropriate assessed all of the potential impacts noted as presented within <b>Chapter 13 Offshore Ornithology</b>. For all impacts it was confidently concluded that the Project would not lead to a significant adverse impact.</p>

ID	Consultee Comments	Applicant Response
3	<p>A review by the Scottish Government<sup>1</sup> highlighted a range of knowledge gaps for shearwaters and petrels which make it difficult to assess all the impacts of offshore wind on all species that breed and forage within the Celtic Sea due in part to the lack of overlap of these species with the current distribution of wind farms, so further evidence is required to better understand the impact of wind power in the Celtic Sea.</p>	<p>The Applicant has followed Natural England’s best practice guidance (Parker et al., 2022) with respect to baseline characterisation for offshore ornithological receptors. The Applicant was aware of concerns previously noted by the RSPB with respect to knowledge gaps for shearwaters and petrels. In order to fill such gaps, additional data sources were utilised to provide confidence in the Applicant’s conclusions for such receptors, the details of which are presented in <b>Section 13.4.3</b> of <b>Chapter 13 Offshore Ornithology</b>.</p>
4	<p>There are a number of concerns in our view have not been adequately addressed which include:</p> <ul style="list-style-type: none"> <li>• There is a lack of spatial information for the Celtic Sea identifying important foraging areas of a range of species including the critically endangered Balearic shearwater, internationally important populations of Manx shearwater (on Lundy) and storm petrel to inform on the potential impact of location of the current at sea lease site. Previous tracking studies show that some species from different colonies (sub-colonies) can display very different foraging area preferences so understanding this could be critical in understanding colony specific impacts. The limited tracking data for Manx shearwater from Lundy indicates there is a degree of overlap with an ocean thermal front predominantly around the west of Lundy and which also extends offshore around the Welsh coast and down the Devon and Cornwall coast to Penwith (where one bird was tracked). The Whitecross location lies close to or within this frontal system. This needs further investigation and more tracking data collected and modelled to identify key areas for seabirds. Wakefield et al<sup>2</sup> used the previous national survey and tracking data to model important at sea sites for a range of other seabirds.</li> </ul>	<p>As recommended in the RSPB’s comment, the Applicant has already relied upon additional data sources in order to inform the assessments of shearwaters and petrels, the details of which are presented in <b>Section 13.4.3</b> and <b>13.6</b> of <b>Chapter 13 Offshore Ornithology</b>.</p>

ID	Consultee Comments	Applicant Response
	<p>Updating the modelling with current census data and tracking information would provide a useful piece of evidence for important populations of those species. The tracking of additional species will expand the evidence base of key species.</p> <ul style="list-style-type: none"> <li>• The importance of the Celtic Sea for seabirds is growing rapidly (e.g. the population of Manx shearwater has grown on Lundy from 11,000 birds in 2017/18 to 25,200 birds in 2023 (Seabird Monitoring Programme database). alone and the recovery of the population may result in new areas of sea being re-occupied and this needs further consideration.</li> <li>• Whilst aerial photography provides some very useful evidence of at sea use by seabirds the assessment is too heavily dependent on one method for some poorly understood species. It has its limitations including its time limited nature, we have concerns whether it covers all species adequately e.g. Storm Petrel and Balearic Shearwater, and it does not address the nocturnal or crepuscular use of the sea area by seabirds (seabirds may forage or loaf in areas at night or migrate through at night e.g. sandwich terns), is weather dependent so doesn't pick up changes in birds' behaviour in poor or bad weather, and the origin of the seabirds surveyed is not known so functional linkage is not clear.</li> <li>• Dietary analysis of Manx Shearwaters on Rum indicates that Manx Shearwater maybe foraging at night pre-incubation phase. Our understanding of behaviour of juveniles post fledging and sub adults is also poor, so there maybe instances when Manx shearwater forage or loaf at night at sea further from the colony than we are currently aware off.</li> </ul>	

ID	Consultee Comments	Applicant Response
	<ul style="list-style-type: none"> <li>• Storm Petrel forage at night and there is no information of their use of the sea area at this time. It has been found that storm petrel can spend 19-54% of their time resting on the water making aerial observations challenging at the least.</li> <li>• The phase of the moon has a big impact on Manx Shearwater and Storm Petrel behaviour at colonies and this could also have implications for survey timing.</li> </ul>	
<i>Bird Strike</i>		
5	<p>For some species e.g. Storm Petrel and Manx Shearwater flight height is poorly understood during bad weather or poor visibility or at night. Both Manx Shearwater and Storm Petrel at colonies occur within or above the height of wind turbines and therefore birds may change their behaviour in relation to windfarm structures at night/in bad weather, so this needs further investigation.</p> <ul style="list-style-type: none"> <li>• There is some evidence that shearwater species and potentially Storm Petrel, are attracted to windfarms due to local prey enhancement so this needs further investigation.</li> <li>• Dietary analysis of Manx Shearwaters on Rum indicates that Manx Shearwater maybe foraging at night pre-incubation phase. Our understanding of behaviour of juveniles post fledging and sub adults at sea is also poor, so there maybe instances when Manx shearwater forage at night, or roost at distance from the colony so this needs further investigation</li> <li>• Light induced disorientation is well known for both adults and (particularly) juvenile Manx Shearwater and storm petrel species. Studies show conflicting sensitivities for different species depending on the colour and whether they are flashing or not. The use of red light may benefit</li> </ul>	<p>The Applicant has relied upon the best available data sources to inform which species have the potential to be at risk of collision with WTGs. Both storm petrels and Manx shearwaters typical flight behaviour is to 'shear' along the troughs of waves, which means the species do not fly at collision risk height. The Applicant acknowledges that during severe weather conditions there is potential for shearwaters to fly at higher altitudes in response to such conditions. However, such conditions are infrequent and during such adverse weather conditions, WTGs usually have to be powered down to avoid damage thus eliminating the potential for collision risk mortality. It should also be noted that when adverse weather conditions occur mostly when shearwater and petrel species are not present in UK waters (during the UK winter), so they would be less likely to be subject to such conditions and any increased risk levels.</p> <p>The Applicant has considered the potential for lighting effects, with particular focus on petrels and shearwaters as detailed within <b>Section 13.3.7</b> of the <b>Chapter 13 Offshore Ornithology</b>.</p>



ID	Consultee Comments	Applicant Response
	<p>species such as Manx Shearwater but have a negative effect on other species. The issue will need agreement on standardised lighting to prevent confusion of users of the lights and potentially adverse impacts on other species.</p> <ul style="list-style-type: none"> <li>• Low frequency noises have found to potentially attract Manx Shearwaters, so this needs further investigation in relation to windfarms</li> </ul>	
<i>Displacement and Barrier Effects</i>		
6	<p>See comments above re concerns about loss of important foraging areas.</p> <ul style="list-style-type: none"> <li>• There is only limited data on avoidance of windfarms by Manx Shearwater and none for storm petrel. We don't know where the important foraging areas for all the key species from key sites are so our understanding of displacement and barrier effects poor. We do know that the energy required for egg laying will be very high (one of the highest of any bird for storm petrel) so any impact likely to be significant. In addition the circular movement of species such as Manx shearwaters mean that the distribution of windfarms could be critical.</li> <li>• We don't know whether the current location of floating wind will result in a loss of access to important sites for food prey items (or damage their habitat). We have little knowledge of the critical prey abundance for species involved, or the spatial and temporal availability of food prey items, to adequately assess any impacts on the availability of food sources.</li> <li>• Lights attract seabirds such as Manx Shearwater and Storm Petrel and therefore it will be important to identify a relevant survey buffer around each site to reflect the potential impact zone.</li> </ul>	<p>The Applicant has undertaken assessment of displacement and barrier effects in accordance with best practice guidance (Parker et al., 2022; SNCB's, 2022). This included assessment of Manx shearwater following the approach discussed and agreed with the RSPB during the ETG meeting 24<sup>th</sup> April 2023. With respect to the displacement and barrier effects on Manx Shearwater it was confidently concluded that the Project would not lead to a significant adverse impact.</p> <p>The Applicant has considered impacts on prey as presented within <b>Section 13.10.4</b> of <b>Chapter 13 Offshore Ornithology</b>, with further assessments presented within <b>Chapter 10: Benthic and Intertidal Ecology</b> and <b>Chapter 11: Fish and Shellfish Ecology</b>. With respect to the seabird prey items noted it was confidently concluded that the Project would not lead to a significant adverse impact.</p> <p>The Applicant has considered the potential for lighting effects, with particular focus on petrels and shearwaters as detailed within <b>Section 13.3.7</b> of the <b>Chapter 13 Offshore Ornithology</b>.</p>

ID	Consultee Comments	Applicant Response
7	<p>Based upon our lack of knowledge we would recommend that further decisions are delayed until further research and strategic evidence has been produced to support delivery of wind farms in the Celtic Sea. If the development is granted a licence, the RSPB object to the proposal unless the following are secured as a condition of the licence and agreed with Natural England and RSPB.</p> <ul style="list-style-type: none"> <li>• Agreed Construction Environment Management Plan in place before works start</li> <li>• An ecologist (ecological clerk of works) in place to oversee works</li> <li>• Agreed Construction and post construction monitoring of seabirds including thermal and non-thermal imagery (but not restricted to) to provide information during the day and night</li> <li>• Research package (independently scrutinised) to address uncertainties regarding impacts potentially including tracking of seabirds during various life and breeding stages to identify important areas from key colonies including from Lundy to model important sea areas, confirm ecology and interactions with windfarms, and support aerial image assessments. Dietary studies to confirm food prey items at different seabirds' life stages in the Celtic Sea and identification of important spawning and nursery grounds of key prey species to understand impacts on them.</li> <li>• An agreed zone around Lundy during construction and operational phase excluding the use of this sea area for use as wet storage facility or harbourage area, or access route to the development area for maintenance vessels or structures associated with the project.</li> <li>• An agreed lighting plan in place prior to the development taking place.</li> </ul>	<p>The Applicant will consider the recommendations highlighted with respect to post-consent monitoring for the Project.</p>

ID	Consultee Comments	Applicant Response
	<ul style="list-style-type: none"> <li>• An agreed pollution prevention plan in place for the construction and operational phase of the project prior to the development starting</li> <li>• A biosecurity plan for all contractors and operators for both for the construction and operational phase of the windfarms and a funded a biosecurity and incursion response plan for rodents, in place prior to the development taking place.</li> </ul> <p>A range of research projects are already underway, so it is important to discuss the research package in advance to ensure that the project targets gaps in knowledge and supports the verification of other assessment methods</p>	

### 3. References

Parker, J., Fawcett, A., Banks, A., Rowson, T., Allen, S., Rowell, H., Harwood, A., Ludgate, C., Humphrey, O., Axelsson, M., Baker, A. & Copley, V. (2022c). Offshore Wind Marine Environmental Assessments: Best Practice Advice for Evidence and Data Standards. Phase I, II & III. Natural England. Version 1.2. 140 pp.

SNCBs, (2022) Joint SNCB Interim Displacement Advice Note: Advice on how to present assessment information on the extent and potential consequences of seabird displacement from Offshore Wind Farm (OWF) developments (updated January 2022 to include reference to the Joint SNCB Interim Advice on the Treatment of Displacement for Red-Throated Diver).