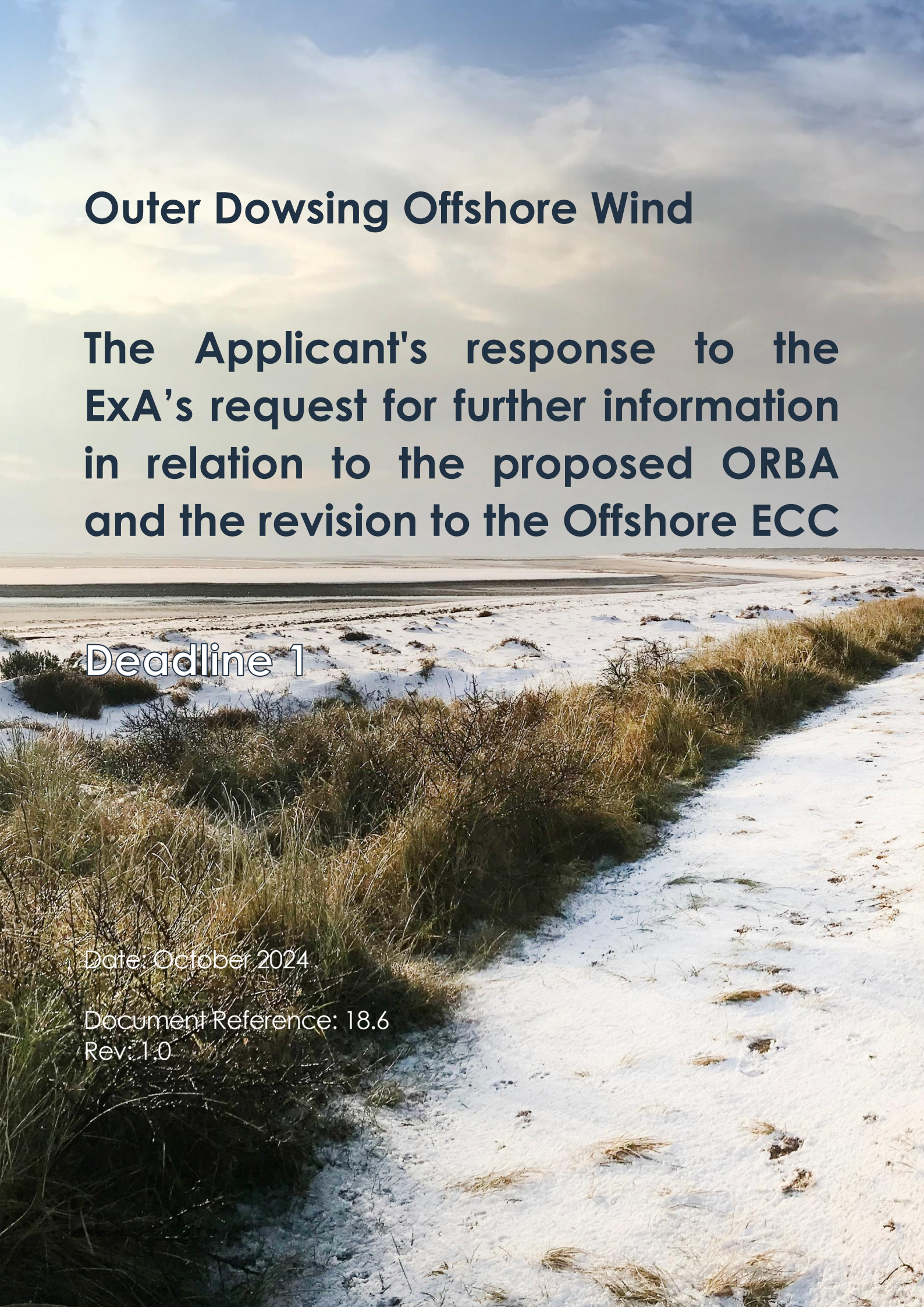

Outer Dowsing Offshore Wind

The Applicant's response to the ExA's request for further information in relation to the proposed ORBA and the revision to the Offshore ECC

Deadline 1

Date: October 2024

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Executive Summary

The Rule 8 Letter - Notification of Timetable for the Examination was published by the Examining Authority on 18 October 2024. Within Annex C, the Examining Authority requested further information from the Applicant with regards to the proposed Offshore Restricted Build Area (ORBA) and the revision to the Offshore Export Cable Corridor, with a response requested by Deadline 1 on 24 October 2024.

This document provides the further information requested by the Examining Authority. Details of the turbine spacing and the Maximum Design Scenario are provided for context in Section 1 and responses to each of the Examining Authority's individual queries are provided in Table 1.2.

Following the introduction of the Offshore Restricted Build Area (ORBA):

a. Offshore design parameters, including turbine spacing, remain as set out in the Development Consent Order submitted with the application.
b. Despite the reduction of the area in which turbines will be placed, the maximum density of the turbines remains the same.
c. Therefore, the MDS used for each of the assessments remains accurate and applicable.

Collision risk modelling (CRM) and displacement calculations have been re-run using average species densities within the new WTG Area (i.e. following the introduction of the ORBA) and, for CRM, utilising recently updated (August 2024) parameters as advised by Natural England (NE).

Results from the High and Low scenarios used within calculations were provided, both within the original application submission and within the documents explaining the introduction of the ORBA. Signposting as to where these scenarios are discussed is provided.

When assessing a Worst Case Scenario (WCS), the introduction of the ORBA provides benefits for all species vulnerable to displacement; for some species vulnerable to collision risk, the introduction of the ORBA has resulted in some minor changes to impacts which do not affect the conclusions of the assessment.

An explanation of the Maximum Design Scenario (MDS) is presented; both CRM and displacement calculations do not assess specific layouts and turbine spacing is not a parameter used in either assessment.

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Acronyms & Definitions

Abbreviations / Acronyms

Abbreviation / Acronym	Description
CI	Confidence Interval
CRM	Collision Risk Modelling
DAS	Digital Aerial Surve
DCO	Development Consent Order
ECC	Export Cable Corridor (offshore ECC or indicative onshore ECC)
EIA	Environmental Impact Assessment
ES	Environmental Statement
EU	European Union
ExA	Examining Authority
HVAC	High Voltage Alternating Current
JNCC	Joint Nature Conservation Committee
LAT	Lowest Astronomical Tide
MDS	Maximum Design Scenario
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MSL	Mean Sea Level
MW	Mega Watt
N/A	Not Applicable
NGET	National Grid Electricity Transmission
NSIP	Nationally Significant Infrastructure Project
ODOW	Outer Dowsing Offshore Wind (The Project)
OnSS	Onshore Substation
OSS	Offshore Substation
ORBA	Offshore Restricted Build Area
PEIR	Preliminary Environmental Information Report
WTG	Wind Turbine Generator

Terminology

Term	Definition
400kV cables	High-voltage cables linking the OnSS to the NGSS.
400kV cable corridor	The 400kV cable corridor is the area within which the 400kV cables connecting the onshore substation to the NGSS will be situated.
The Applicant	GT R4 Ltd. The Applicant making the application for a DCO. The Applicant is GT R4 Limited (a joint venture between Corio Generation (and its affiliates), Total Energies and Gulf Energy Development (GULF)), trading as Outer Dowsing Offshore Wind. The Project is being developed by Corio Generation, TotalEnergies and GULF.
Array area	The area offshore within which the generating station (including wind turbine generators (WTG) and inter array cables), offshore accommodation platforms, offshore transformer substations and associated cabling will be positioned, including the ORBA.
Baseline	The status of the environment at the time of assessment without the development in place.
Cable Circuit	A number of electrical conductors necessary to transmit electricity between two points bundled as one cable or taking the form of separate cables, and may include one or more auxiliary cables (normally fibre optic cables).
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for a Nationally Significant Infrastructure Project (NSIP).
Effect	Term used to express the consequence of an impact. The significance of an effect is determined by correlating the magnitude of the impact with the sensitivity of the receptor, in accordance with defined significance criteria.
EIA Directive	European Union 2011/92/EU (as amended by Directive 2014/52/EU).
EIA Regulations	Infrastructure Planning (Environmental Impact Assessment) Regulations 2017
Environmental Impact Assessment (EIA)	A statutory process by which certain planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information, which fulfils the assessment requirements of the EIA Regulations, including the publication of an Environmental Statement (ES).
Environmental Statement (ES)	The suite of documents that detail the processes and results of the EIA.
High Voltage Alternating Current (HVAC)	High voltage alternating current is the bulk transmission of electricity by alternating current (AC), whereby the flow of electric charge periodically reverses direction.
Impact	An impact to the receiving environment is defined as any change to its baseline condition, either adverse or beneficial.
Indicative Working Width	The indicative working width within the Onshore Export Cable Corridor (ECC), required for the construction of the onshore cable route.
Inter-array cables (note: hyphenation)	Cable which connects the wind turbines to each other and to the offshore substation(s)(OSS), which may include one or more auxiliary cables (normally fibre optic cables).

Term	Definition
Intertidal	The area between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS)
Joint bays	An excavation formed with a buried concrete slab at sufficient depth to enable the jointing of high voltage power cables.
Landfall	The location at the land-sea interface where the offshore export cables and fibre optic cables will come ashore.
Maximum Design Scenario	The project design parameters, or a combination of project design parameters that are likely to result in the greatest potential for change in relation to each impact assessed
Mitigation	Mitigation measures are commitments made by the Project to reduce and/or eliminate the potential for significant effects to arise as a result of the Project. Mitigation measures can be embedded (part of the project design) or secondarily added to reduce impacts in the case of potentially significant effects.
National Grid Onshore Substation (NGSS)	The National Grid substation and associated enabling works to be developed by the National Grid Electricity Transmission (NGET) into which the Project's 400kV Cables would connect.
Offshore Export Cable Corridor (ECC)	The Offshore Export Cable Corridor (Offshore ECC) is the area within the Order Limits within which the export cables running from the array to landfall will be situated.
Offshore Substation (OSS)	A structure attached to the seabed by means of a foundation, with one or more decks and a helicopter platform (including bird deterrents), containing— (a) electrical equipment required to switch, transform, convert electricity generated at the wind turbine generators to a higher voltage and provide reactive power compensation; and (b) housing accommodation, storage, workshop auxiliary equipment, radar and facilities for operating, maintaining and controlling the substation or wind turbine generators
Onshore Export Cable Corridor (ECC)	The Onshore Export Cable Corridor (Onshore ECC) is the area within which, the export cables running from the landfall to the onshore substation will be situated.
Onshore Infrastructure	The combined name for all onshore infrastructure associated with the Project from landfall to grid connection.
Onshore substation (OnSS)	The Project's onshore HVAC substation, containing electrical equipment, control buildings, lightning protection masts, communications masts, access, fencing and other associated equipment, structures or buildings; to enable connection to the National Grid
Outer Dowsing Offshore Wind (ODOW)	The Project.
Order Limits	The area subject to the application for development consent, the limits shown on the works plans within which the Project may be carried out.
The Planning Inspectorate	The agency responsible for operating the planning process for Nationally Significant Infrastructure Projects (NSIPs).
Preliminary Environmental	The PEIR was written in the style of a draft Environmental Statement (ES) and provided information to support and inform the statutory

Term	Definition
Information Report (PEIR)	consultation process during the pre-application phase.
The Project	Outer Dowsing Offshore Wind, an offshore wind generating station together with associated onshore and offshore infrastructure.
The WTG Area	The area within the order limits where Wind Turbine Generators (WTG) can be located following the introduction of the Offshore Restricted Build Area (ORBA), as secured by Requirement 4(2), Part 3, Schedule 1, Condition 1(5), Part 2, Schedule 10 and Condition 1(7), Part 2, Schedule 11 of the DCO and shown on the Offshore Works Plan (PD1-005).
Project design envelope	A description of the range of possible elements that make up the Project's design options under consideration, as set out in detail in the project description. This envelope is used to define the Project for Environmental Impact Assessment (EIA) purposes when the exact engineering parameters are not yet known. This is also often referred to as the "Rochdale Envelope" approach.
Statement of Common Ground	A statement of common ground is a written statement produced jointly between The Applicant and another Interested Party setting out the areas of agreement and /or disagreement between parties.
Study Area	Area(s) within which environmental impact may occur – to be defined on a receptor-by-receptor basis by the relevant technical specialist.
Wind turbine generator (WTG)	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 landing facilities and other associated equipment, fixed to a foundation

1 Turbine Spacing & Key Design Parameters

2. The Applicant wishes to highlight to the Examining Authority that although the introduction of the Offshore Restricted Build Area (ORBA) has reduced the area within which turbines will be located from 436km^2 to 364.7km^2 (the ORBA covers 16.4% of the array area), all other offshore Project parameters remain the same (as set out in Table 1), this includes:

   - The minimum turbine spacing of 605m, as set out in section 4.1.1, paragraph 25 of Chapter 3: Project Description (APP – 058) and as secured in Requirement 2(1)(d), Part 3, Schedule 1 of the draft Development Consent Order (DCO) (reference 3.1), which states:

"Detailed offshore design parameters

2.—(1) Subject to sub-paragraph (2), each wind turbine generator forming part of the authorised project must not—

(a) exceed a height of 403 metres when measured from LAT to the tip of the vertical blade;

(b) exceed a rotor diameter of 340 metres;

(c) be less than 40 metres from MSL to the lowest point of the rotating blade; and

(d) be less than 605 metres from blade tip to the blade tip of the nearest wind turbine generator. "

   - The maximum permitted number of 100 turbines as set out in section 4.1.1, paragraph 23 of Chapter 3: Project Description (APP-058) and as secured in the description of the authorised development at paragraph 1(a), Part 1, Schedule 1 and the description of the licensed marine activities at paragraph 3, Part 1, Schedule 10 (deemed marine licence)) of the draft DCO, which states:

"Work No. 1—

(a) an offshore wind turbine generating station with a gross electrical output capacity of over 100 MW comprising up to 100 wind turbine generators each fixed to the seabed by either monopile, gravity base structure, pin pile jacket or suction bucket jacket foundations fitted with rotating blades and situated within the area shown on the works plans and further comprising (b) below;"

3. Consequently, despite the reduction in the WTG Area (the area where Wind Turbine Generators (WTG) can be located following the introduction of the ORBA, the maximum permitted density of the turbines will not increase, and the Maximum Design Scenario (MDS) used for each of the assessments within the Environmental Statement remains accurate and applicable.

Table 1: WTG Key Design Parameters

Parameter	Design Envelope
Maximum number of WTGs	100
Indicative maximum number of WTGs assuming maximum rotor diameter	50
Minimum spacing between blade tips of turbines	605m
Maximum blade tip height above LAT	403m

Parameter	Design Envelope
Maximum rotor diameter	340m
Minimum height of lowest blade tip against mean sea level (MSL)	40m

Table 1.2: Responses to queries from the Examining Authority

Reference	Rule 8 Comment	The Applicant Response
1	In the 'ORBA and Revision to the Offshore ECC Appendix E Collision Risk Modelling', Document Reference 15.9 E [PD1-087] the Applicant presents revised collision risk modelling (CRM) figures and in paragraph 13 states that: " This technical annex has been produced to provide the methodology and results of the collision risk modelling (CRM) which has been used to inform the consideration of the environmental implications of the ORBA." Furthermore, in paragraph 14 of [PD1-087] the Applicant states that: "The methodology and input parameters used within the modelling have been updated to follow the recent JNCC (2024) guidance."	Both these statements are correct. Collision risk modelling (CRM) has been re-run and presented in the technical annex (PD1-087) to provide consideration of the environmental implications of the introduction of the ORBA. During this process: ▪ the densities of flying seabirds, within the area where WTGs can be located following the introduction of the ORBA (the WTG Area), were calculated; ▪ updated CRM parameters were used, in line with recently published JNCC (August, 2024, post-DCO application submitted) guidance: "Joint advice note from the Statutory Nature Conservation Bodies (SNCBs) regarding bird collision risk modelling for offshore wind developments" and as requested by Natural England within its relevant representation (RR-045).
2	The ExA notes that Table 2.1 in [PD1-087] is different from that in Table 12.1 of the Applicant's original document reference 6.3.12.2 'Appendix 12.2 Offshore Ornithology Collision Risk Modelling' [APP-163], in that Table 2.1 of [PD1-087] now contains both a High and a Low set of figures. The High set of figures in Table 2.1 of [PD1-087] corresponds to the only set of figures provided in Table 12.1 of [APP-163].	This is correct. Within the original document (document reference 6.3.12.2 'Appendix 12.2 Offshore Ornithology Collision Risk Modelling' (APP-163)) the High scenario was used in the main body of the document (with turbine parameters presented in Table 12.1). In addition, 'Appendix A: Results from a range of WTG Options' of document 6.3.12.2 (APP-163), provided results from both the High and Low scenarios in Table A 1.

Reference	Rule 8 Comment	The Applicant Response
		Both the High and Low scenarios are now presented in the main body of 15.9E Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor Appendix E Collision Risk Modelling (PD1-087) to show the full range of potential impacts.
3	Table 2.7 of [PD1-087] provides a summary of average monthly collisions by species based on the High scenario. For kittiwake the revised predicted figures are higher than those provided in Table 12.7 of [APP-163] for the mean and 97.5% confidence interval (CI) but not for the 2.5% CI. For gannet the predicted figures are lower in Table 2.7 of [PD1- 087] than in Table 12.7 of [APP-163] across the mean, 97.5% CI and the 2.5% CI.	This is correct. CRM outputs in the updated document (PD1-087) are slightly different to the original document (APP-163) due to the following factors: ▪ The reduction in the area where turbines can be located, following the introduction of the ORBA (the WTG Area) which resulted in a slight difference in the densities of flying birds within the array area (owing to the change in area from which densities were calculated); and ▪ The use of updated CRM guidance (JNCC, 2024) which was published post-DCO application submission (August 2024) which resulted in slight changes to some seabird behavioural input parameters (e.g., Nocturnal Activity Factors (NAFs)). Based on the outputs of the CRM, there is no change to the predicted magnitude of effect and the conclusions of the Environmental Statement (ES) remain valid and unchanged.
4	However, the ExA is unclear whether the changes to the average monthly collisions for some of the six species between Table 12.7 of [APP-163] and the High scenario in Table 2.7 of [PD1-087] are as a result of the proposed ORBA and ECC Revision, the updated 2024 JNCC guidance solely, or both of these taken together. The	The adjustments in collision estimates are driven by two key factors: ▪ Revisions to the flying bird densities input into the model following the introduction of the ORBA. ▪ Use of updated (August 2024) Joint Nature Conservation Committee (JNCC) guidance,

Reference	Rule 8 Comment	The Applicant Response
	Applicant is requested to provide clarification of this which should include figures for each of the variables defined by the Applicant.	particularly regarding Nocturnal Activity Factors (NAFs). CRM outputs for kittiwake have increased slightly (by approximately two birds). This is due to a combination of factors, including the use of a higher NAF (from 37.5% to 40%) for kittiwake, the nature of stochastic type models, the outputs of which will vary between runs, and a slight increase in kittiwake densities used in the model (an average increase in monthly density of 0.03 kittiwake per km^2), a reflection of the slightly lower kittiwake densities close to the edges of the array For gannet, the NAF has been revised from 10% to 14%, although the overall collision estimates for gannets presented in PD1-087 have decreased considerably, compared with APP-163, largely due to the inclusion of a 70% macro-avoidance rate, as recommended by Natural England. Despite these updates, the conclusions of the assessment remain the same.
5	The ExA notes that the Maximum Design Scenario for offshore and intertidal ornithology has been set out in Table 12.10 of ES Chapter 12 [AS1-040]. Notwithstanding this, the ExA remains unclear as to exactly how the worst-case scenario that underpins the ornithological modelling has been arrived at. In particular, the ExA notes that for the operation and maintenance phase, as set out in Table 12.10, WTGs deployed across the full array area has been considered to represent the maximum design scenario for	Within Table 12.10 of ES Chapter 12 (AS1-040), the MDS for bird collision specifies WTG deployment across the full array area. With the introduction of the ORBA, turbines will only be placed in the parts of the array area not covered by the ORBA (the WTG Area). Therefore, the updated MDS for collision risk modelling considers bird densities and WTG presence within the WTG Area only. The WTG Area is also the MDS of the disturbance and displacement assessment. As described in

Reference	Rule 8 Comment	The Applicant Response
	both collision risk and for disturbance and displacement mortalities.	Section 1, all other offshore Project parameters remain the same. The assessments carried out in the ES and the RIAA were based on the WCS. The analysis of the assessment conclusions undertaken with the introduction of the ORBA again proceeded on the basis of the WCS. The benefits of the introduction of the ORBA are noticeable for all displacement species. The introduction of the ORBA has also resulted in some minor changes to the impacts to collision risk species; however, these changes do not affect the conclusions of the assessment.
6	The ExA seeks clarification from the Applicant as to what deploying WTGs across the full array area, which is considered to represent the maximum design scenario, would entail. For example, would it be the worst-case scenario in terms of modelling for both collision and disturbance/displacement mortalities to assume that 100 WTGs would be spaced at equal distances along only the entire outer boundary of the array area, or would they be equally spaced out so as to cover the entire array area and therefore with larger distances between each WTG? Alternatively, would more concentrated groupings of up to 100 WTGs in certain zones within the overall array area have the potential to result in greater adverse effects for certain species	The Applicant wishes to highlight to the Examining Authority that CRM and displacement calculations do not assess specific layouts and turbine spacing is not a parameter used in either assessment. For collision risk, when considering a specific generating capacity of an offshore wind farm, a larger number of smaller turbines will form the MDS (as opposed to a smaller number of larger turbines). However, turbine spacing as a parameter is not included within CRM and therefore changes in turbine spacing would not be considered quantitatively as part of the assessment. Any change from the introduction of the ORBA results from the change in average species density when comparing the Array Area with the WTG Area. This species density is input into the CRM, assuming a uniform distribution of birds across the site.

Reference	Rule 8 Comment	The Applicant Response
		Turbine spacing is not quantitatively incorporated into displacement assessments. These assessments rely on digital aerial survey (DAS) data to determine bird abundance within the wind farm array and a surrounding buffer area, applying a relevant displacement rate without accounting for differences in turbine spacing. The introduction of the ORBA results in a smaller area within which turbines may be placed which reduces the number of birds at risk of displacement (for all key species) through a simple reduction of the turbine footprint, in this case targeted to guillemot by removing a portion of the array that holds high densities of birds. This reduction of impacts was the main driver for the introduction of the ORBA. The Applicant wishes to emphasise that the ORBA has been introduced as a mitigation measure, and its introduction has resulted in a reduction in the summed annual mean seasonal peak abundance of guillemot from 27,653.3 birds in the array area plus 2km buffer (Appendix 12.1 Offshore and Intertidal Ornithology Technical Baseline (AS1-064)) to a summed annual mean seasonal peak abundance of 23,586 guillemot in the WTG Area plus 2km buffer (Appendix 15.9D (PD1-086)). The introduction of the ORBA also reduces the number of birds at risk of displacement for several other species, including gannet, razorbill and puffin.

References

JNCC, Natural England, Natural Resources Wales, NatureScot. 2024. Joint advice note from the Statutory Nature Conservation Bodies (SNCBs) regarding bird collision risk modelling for offshore wind developments. JNCC, Peterborough. Available at: https://hub.jncc.gov.uk/assets/f7892820-0f84-4e96-9eff-168f93bd343d [Accessed 21 October 2024]