Hornsea Project Four

Applicant's Ornithology Position Paper

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Glossary

Term	Definition
Bio-season	Bird behaviour and abundance is recognised to differ across a calendar year, with particular months recognised as being part of different seasons. The biologically defined minimum population scales (BDMPS) bio-seasons used in this report are based on those in Furness (2015), hereafter referred to as bio-seasons.
Displacement	The potential for birds and other animals to avoid an area due to the presence of the wind turbines or from vessel activity.

Acronyms

Term	Definition
CRM	Collision Risk Modelling
FFC SPA	Flamborough and Filey Coast Special Protection Area
HRA	Habitat Regulations Assessment
OWF	Offshore Wind Farm
SD	Standard Deviation
SNCB	Statutory Nature Conservation Body

1 Introduction

1.1.1.1 This report has been produced at the request of the Examining Authority (EV-035a) in order to provide the following information:

- The Applicant's final position on key ornithology parameters and supporting evidence.
- The Applicant's final position on EIA outputs and conclusions.
- The Applicant's final position on HRA outputs and conclusions.
- The Applicant's final HRA derogation case.
- Hornsea Four and the Energy Landscape – Closing Remarks

2 The Applicant's final position on key ornithology parameters and supporting evidence

2.1.1.1 The purpose of this section is to succinctly summarise the Applicant's position on key ornithology parameters for Collision Risk Modelling (CRM) and displacement for the key species of concern (kittiwake, guillemot and razorbill) and to signpost evidence to support the position and cross-check with the recent Round 4 Plan Level HRA (Niras, 2022b).

2.1.1.2 The Applicant has signposted to all the information considered for the Applicant's approach to assessment of offshore ornithological features, in particular kittiwake, guillemot and razorbill due to disagreement remaining between the Applicant and Natural England on approach to assessment and final positions for the project..

2.1.1.3 As summarised below the Applicant's position has utilised the best available evidence for incorporation within assessments in order to minimise uncertainty and improve confidence in assessment conclusions.

Table 1: Data Sources for Displacement – Auk species

Data Source	Relevance and Commentary
G1.47 Auk Displacement and Mortality Evidence Review (REP1-069)	**The Applicant's Displacement Rate** The Applicant's evidence base for the use of a displacement rate of between 0% up to 50% for auk species. This report comprised of critical appraisal of post consent monitoring data of 21 offshore wind farms (OWFs), including suitability of their analysis methods and suitability of the displacement effects predicted in relation to Hornsea Four. It should be noted that this document went through multiple iterations following consultation through the evidence plan process with Natural England and RSPB, and the final methods and data reviewed was agreed .
	The Applicant's Mortality Rate The Applicant's evidence based for the use of a mortality rate of up to 1% for auk species. The evidence base for the derived potential mortality rate of displaced auks has been derived from two studies that predict the population level consequence of displaced seabirds from OWFs using simulation models and a recent modelling study estimating changes in adult survival from OWF displacement. These studies were then cross examined against empirical evidence from auk colony data to determine whether any changes have occurred to colony population trends since the operation of local OWFs.
G5.7 Indirect Effects of Forage Fish and Ornithology (REP5-085)	**Supporting Evidence for the Applicant's Mortality Rate** Report providing further support for the Applicant's advocated lower mortality rate range, as the results of the report clearly shows that the quality of habitat within the Hornsea Four array area plus 2 km buffer is low comparatively to the alternative surrounding available habitat, which displaced auks may reasonably utilise instead. This is visually presented in Figure 11 of the report.
Joint SNCB (Updated, 2022)	**Natural England's Displacement Rate** Joint Statutory Nature Conservation Bodies (SNCB) guidance note providing Natural England's position in relation to a displacement rate of 30-70% displacement rate for auk species. This range is based on SNCB's translating the 'Disturbance Susceptibility' scores from ship and helicopter traffic (and to a lesser extent OWFs) in Bradbury et al. (2014) which gives an as described "crude" approximation of potential effects in the absence of (at the time of drafting) any additional evidence. The initial guidance was drafted in 2017, whilst the latest version only provides an update to red-throated diver displacement and so did not include a review of the multiple new studies on auks between 2017 and 2022. The 30-70% displacement range presented in this guidance has been put forward

	regardless of the quality of the older studies included or confidence in the derived rate, furthermore it does not account for studies that have shown no significant displacement effect or attraction.
	Natural England's Mortality Rate Joint SNCB guidance note providing Natural England's position in relation to a mortality rate of 1-10%. The mortality rate of up to 10% being assessed is based on opinion only expressed during a workshop in 2012 as a suitable rate to assess up to.
Offshore Wind Leasing Round 4 Plan Level HRA, RIAA Annex H.3 Apportioning (NIRAS, 2022a)	**Round 4 Plan Level HRA Apportioning Rationale** Annex providing the Round 4 Plan Level HRA apportioning methods and rationale.
Offshore Wind Leasing Round 4 Plan Level HRA, RIAA Appendix H Ornithology Array Assessment Part 2 (NIRAS, 2022b)	**Round 4 Plan Level HRA Assessments** Appendix providing the Round 4 Plan Level HRA assessments against designated sites and features including the Flamborough and Filey Coast Special Protection Area (FFC SPA).

Table 2: Displacement Parameters – Guillemot

Parameter	Applicant's position	Position taken in Round 4 plan-level HRA (Preferred projects)	NE's position	Commentary
Displacement Rate	0-50%	30%, 50% & 70%	30-70%	The Applicant has assessed on the upper limit of displacement based on the results of G1.47 Auk Displacement and Mortality Evidence Review (REP1-069) which considered 50% to be a realistic worst case for impacts from Hornsea Four specifically. The Round Four Plan Level HRA presented three levels of displacement rates, the 30% and 70% rate were based on Joint SNCB (Updated, 2022) guidance note and 50% based on literature review (Section 3.3 of NIRAS, 2022d). For displacement assessments, the author considered 50% to be a realistic worst case when considering the high levels of uncertainty around elements of the assessment such as such as using regional scale density data in the absence of site specific survey data (Paragraph 6.1.270 of NIRAS, 2022b). Natural England's range of 30-70% is based on Joint SNCB (updated, 2022) generic guidance note.
Mortality Rate	0-1%	1%, 5% & 10%	1-10%	The Applicant has assessed on the upper limit of mortality based on the results of G1.47 Auk Displacement and Mortality Evidence Review (REP1-069) which considered 1% to be a realistic worst case for impacts from Hornsea Four. The Round Four Plan Level HRA presented three levels of mortality rates of 1%, 5% and 10%. For displacement assessments, the author considered 5% to be a realistic worst case, when considering the high levels of uncertainty around elements of the assessment such as using regional scale

				density data in the absence of site-specific survey data (Paragraph 6.1.270 of NIRAS, 2022b). Natural England's range of 1-10% is based on Joint SNCB (updated, 2022) generic guidance note.
FFC SPA Apportionment (Breeding adult apportionment %)	100.00	0.00 (1, 2 & 3)	100.00	Both the Applicant and Natural England have apportioned 100% of all impacts during the breeding season to breeding adults from the FFC SPA due to being within mean max plus 1 Standard deviation (SD) away from the colony (Woodward et al. 2019). For the Round 4 Plan Level HRA (Paragraph 6.1.266 of NIRAS, 2022b) the author disagrees with the use of mean-max plus 1SD foraging range for apportionment of impacts during the breeding season, as it is not representative of typical foraging behaviour. On this basis it was concluded that there is likely low connectivity during the breeding season. If this same assumption was applied to Hornsea Project Four, which is a similar distance away from the FFC SPA to some of the Round 4 projects then the Applicant's current apportionment rate of 100% can be considered significantly overly precautionary.
FFC SPA Apportionment (immature apportionment %)	40.00	41.24 (1, 2 & 3)	Not considered	The approach taken for derivation of immature apportionment for the Round 4 Plan Level HRA (Section 3.3 of NIRAS, 2022a) and the Applicant was to both use the population generic stable age structure derived from Furness (2015), due to the difficulties in identifying juvenile and immature guillemots. Natural England's apportionment method did not consider the proportion of immatures likely to be present within Hornsea Four (REP5-115). No rationale was provided as to why Natural England did not consider an immature apportionment rate for guillemot.
FFC SPA Apportionment (Sabbatical apportionment %)	7.00	7.00 (1, 2 & 3)	0.00	The approach taken for derivation of sabbatical apportionment for the Round 4 Plan Level HRA (Section 3.4

				of NIRAS, 2022a) and the Applicant was to use the guidance produced by Marine Scotland (2017). Natural England's apportionment method did not consider the proportion of sabbaticals likely to be present within Hornsea Four (REP5-115).
FFC SPA Apportionment (Breeding season total apportionment %)	55.80	0.00-10.00 (1, 2 & 3)	100.00	In comparison to the approach taken for the Round 4 Plan Level HRA breeding season apportionment (NIRAS, 2022a), the Applicant's overall value and even more so Natural England's can be considered overly precautionary due to being located in a similar region of sea and similar distance away from the FFC SPA as the Round 4 sites.
FFC SPA Apportionment (Chick rearing period; %)	Not assessed	Not assessed (1, 2 & 3)	60.00	The chick rearing period is an additional seasonal assessment made up of the months of August and September, which was assessed for Natural England's apportionment approach only. This additional seasonal assessment has not been carried out or requested for any other project to date and was not required for the Round 4 Plan Level HRA sites (NIRAS, 2022a,b), despite some sites being in the same region of sea to Hornsea Four and similar in terms of proximity to the FFC SPA.
FFC SPA Apportionment (Non-breeding season; %)	13.12	4.41 (1, 2 & 3)	4.41	The Applicant considered a bespoke approach to the non-breeding season apportionment at the request of Natural England to account for the likelihood of a higher proportion of adult birds being from the FFC SPA during the first two months of the seven-month non-breeding season. This resulted in the Applicant apportioning nearly three times the amount of predicted impacts to the FFC SPA during the seven month non-breeding period than has previously been applied for any consented OWF project, including those within a similar distance and connectivity to the FFC SPA, such as other Hornsea Zone and Dogger Bank Zone projects. This provides a significant level of additional precaution in the assessment.

				For the Round 4 Plan Level HRA (Section 4.2 of NIRAS, 2022a) the standard non-breeding apportionment value of 4.41% was applied to the entire non-breeding season, which includes the months of August and September. For Natural England's approach the standard apportionment approach was applied for the remaining five months of the non-breeding season (REP5-155; Natural England requested the months of August and September be assessed separately).

2.1.1.4 As there is significant differences between the approaches taken by the Applicant, Natural England and the Round Four Plan Level HRA preferred worst case scenario assessments, the Applicant has created assessment comparison tables which present the predicted impacts when considering a mixture of different assessment parameters advocated by the three parties (**Table 3** and **Table 4**) to aid the Examining Authority when considering the most realistic worst case scenario for predicted impacts of Hornsea Four apportioned to the guillemot feature of the FFC SPA.

2.1.1.5 As presented in **Table 4**, even when considering the Round Four Plan Level HRA mortality rate of a maximum of 5% per annum, which was to account for the level of uncertainty in primarily using regional data over site specific survey data, the differences in predicted impacts are not dissimilar between the two assessments. Whereas the predicted impact level when using all of Natural England's preferred parameters (**Table 3**) is significantly different than either the Applicant's predicted impacts (difference of 193%) or the Round Four Plan Level HRA (difference of 189%), emphasising the significant compounding effect of adding layer upon layer of precaution has on the final predicted impact.

Table 3: Guillemot comparison of predicted impacts apportioned to the FFC SPA when combining the Applicant's and Natural England's worst case scenario parameters.

Assumptions	Applicant	1	2	3	4	Natural England
Breeding Season abundance	Mean peak	Mean peak	Mean peak	Mean peak	Mean peak	Mean peak
Non-breeding abundance	Weighted mean peak	Mean peak	Mean peak	Mean peak	Mean peak	Mean peak
Displacement rate	50%	50%	70%	70%	70%	70%
Mortality rate	1%	1%	1%	10%	10%	10%
FFC SPA apportionment rate (Breeding bio-season)	55.8%	55.8%	55.8%	55.8%	100.0%	100.0%
FFC SPA apportionment rate (Chick rearing/ moult period)	Not assessed	Not assessed	Not assessed	Not assessed	Not assessed	60%
FFC SPA apportionment rate (Non-breeding bio-season)	13.12%	13.12%	13.12%	13.12%	13.12%	4.41%
Predicted Impact (Breeding adult mortalities per annum)						
	39.5	50.4	70.6	705.9	996.2	2,261.6

Table 4: Guillemot comparison of predicted impacts apportioned to the FFC SPA when combining the Applicant's and Round Four Plan Level HRA's worst case scenario parameters.

Assumptions	Applicant	1	2	3	4	Round Four Plan Level HRA
Breeding Season abundance	Mean peak	Mean peak	Mean peak	Mean peak	Mean peak	Mean peak
Non-breeding abundance	Weighted mean peak	Mean peak	Mean peak	Weighted mean peak	Weighted Mean peak	Mean peak
Displacement rate	50%	50%	50%	50%	50%	50%
Mortality rate	1%	5%	5%	1%	5%	5%
FFC SPA apportionment rate (Breeding bio-season)	55.8%	55.8%	10.0%	10.0%	10.0%	10.0%
FFC SPA apportionment rate (Chick rearing/ moult period)	Not assessed	Not assessed	Not assessed	Not assessed	Not assessed	Not assessed
FFC SPA apportionment rate (Non-breeding bio-season)	13.12%	13.12%	13.12%	4.41%	4.41%	4.41%
Predicted Impact (Breeding adult mortalities per annum)						
	39.5	197.5	144.7	9.2	45.9	64.2

Table 5: Displacement Parameters – Razorbill

Parameter	Applicant's position	Position taken in Round 4 plan-level HRA (Preferred projects)	NE's position	Commentary
Displacement Rate	0-50%	30%, 40% & 70%	30-70%	The Applicant has assessed on the upper limit of displacement based on the results of G1.47 Auk Displacement and Mortality Evidence Review (REP1-069) which considered 50% to be a realistic worst case for impacts from Hornsea Four specifically. The Round Four Plan Level HRA presented three levels of displacement rates, the 30% and 70% rate were based on Joint SNCB (Updated, 2022) guidance note and 40% based on literature review (Section 3.3 of NIRAS, 2022d). For displacement assessments, the author considered 40% to be a realistic worst case when considering the high levels of uncertainty around elements of the assessment such as using regional scale density data over site specific survey data (Paragraph 6.1.291 of NIRAS, 2022b). Natural England's range of 30-70% is based on Joint SNCB (updated, 2022) generic guidance note.
Mortality Rate	0-1%	1%, 5% & 10%	1-10%	The Applicant has assessed on the upper limit of mortality based on the results of G1.47 Auk Displacement and Mortality Evidence Review (REP1-069) which considered 1% to be a realistic worst case for impacts from Hornsea Four. The Round Four Plan Level HRA presented three levels of mortality rates of 1%, 5% and 10%. For displacement assessments, the author considered 5% to be a realistic worst case, when considering the high levels of uncertainty around elements of the assessment such as such as using regional

				scale density data in the absence of site-specific survey data (Paragraph 6.1.291 of NIRAS, 2022b). Natural England's range of 1-10% is based on Joint SNCB (updated, 2022) generic guidance note.
FFC SPA Apportionment (Breeding adult apportionment %)	100.00	0.00 (1, 2 & 3)	100.00	Both the Applicant and Natural England have apportioned 100% of all impacts during the breeding season to breeding adults from the FFC SPA due to being within mean max plus 1 Standard deviation (SD) away from the colony (Woodward et al. 2019). For the Round 4 Plan Level HRA (Paragraph 6.1.287 of NIRAS, 2022b) the author disagrees with the use of mean-max plus 1 SD foraging range for apportionment of impacts during the breeding season, as it is not representative of typical foraging behaviour. On this basis it was concluded that there is likely low connectivity during the breeding season. If this same assumption was applied to Hornsea Project Four, which is a similar distance away from the FFC SPA to some of the Round 4 projects then the Applicant's current apportionment rate of 100% can be considered significantly overly precautionary.
FFC SPA Apportionment (immature apportionment %)	40.00	40.50 (1, 2 & 3)	Not considered	The approach taken for derivation of immature apportionment for the Round 4 Plan Level HRA (Section 3.3 of NIRAS, 2022a) and the Applicant was to both use the population generic stable age structure derived from Furness (2015), due to the difficulties in identifying juvenile and immature razorbills. Natural England's apportionment method did not consider the proportion of immatures likely to be present within Hornsea Four (REP5-115). No rationale was provided as to why Natural England did not consider an immature apportionment rate for razorbill.
FFC SPA Apportionment (Sabbatical apportionment %)	7.00	7.00 (1, 2 & 3)	0.00	The approach taken for derivation of sabbatical apportionment for the Round 4 Plan Level HRA (Section 3.4

				of NIRAS, 2022a) and the Applicant was to use the guidance produced by Marine Scotland (2017). Natural England's apportionment method did not consider the proportion of sabbaticals likely to be present within Hornsea Four (REP5-115).
FFC SPA Apportionment (Breeding season total apportionment %)	55.80	0.00-10.00 (1, 2 & 3)	100.00	In comparison to the approach taken for the Round 4 Plan Level HRA breeding season apportionment (NIRAS, 2022a), the Applicant's overall value and even more so Natural England's can be considered overly precautionary due to being located in a similar region of sea and similar distance away from the FFC SPA as the Round 4 sites.
FFC SPA Apportionment (return migration bio-season; %)	3.38	3.38	3.38	The same standard return migration apportionment values have been used for all assessments.
FFC SPA Apportionment (post-breeding migration bio-season; %)	3.38	3.38	66	The standard post-breeding migration apportionment values have been used for the Applicant's and Round 4 Plan Level HRA assessments (NIRAS, 2022a). Whereas Natural England requested an apportionment value of 66% (which results in over an 1800% increase in predicted impacts compared to the standard apportionment approach) for the post-breeding bio-season months for razorbill (REP5-115).
FFC SPA Apportionment (migration-free winter bio-season; %)	2.74	2.74	2.74	The standard migration-free winter apportionment values have been used for all assessments.

2.1.1.6 As there is significant differences between the approaches taken by the Applicant, Natural England and the Round Four Plan Level HRA preferred worst case scenario assessments, the Applicant has created assessment comparison tables which present the predicted impacts when considering a mixture of different assessment parameters advocated by the three parties (**Table 6** and **Table 7**) to aid the Examining Authority when considering the most realistic worst case scenario for predicted impacts of Hornsea Four apportioned to the razorbill feature of the FFC SPA.

2.1.1.7 As presented in **Table 7**, even when considering the Round Four Plan Level HRA mortality rate of a maximum of 5% per annum, which was to account for the level of uncertainty in primarily using regional data over site specific survey data, the differences in

predicted impacts are not dissimilar between the two assessments. Whereas the predicted impact level when using all of Natural England's preferred parameters (Table 6) is significantly different than either the Applicant's predicted impacts (difference of 197%) or the Round Four Plan Level HRA (difference of 193%), emphasising the significant compounding effect of adding layer upon layer of precaution has on the final predicted impact.

Table 6: Razorbill comparison of predicted impacts apportioned to the FFC SPA when combining the Applicant's and Natural England's worst case scenario parameters.

Assumptions	Applicant	1	2	3	Natural England
Displacement rate	50%	70%	70%	70%	70%
Mortality rate	1%	1%	10%	10%	10%
FFC SPA apportionment rate (Breeding bio-season)	55.80%	55.80%	55.80%	100%	100%
FFC SPA apportionment rate (Post-breeding migration bio-season)	3.38%	3.38%	3.38%	3.38%	66%
FFC SPA apportionment rate (Migration-free winter bio-season)	2.74%	2.74%	2.74%	2.74%	2.74%
FFC SPA apportionment rate (Return migration bio-season)	3.38%	3.38%	3.38%	3.38%	3.38%
Predicted Impact (Breeding adult mortalities per annum)					
	1.9	2.7	27.2	39.2	228.1

Table 7: Razorbill comparison of predicted impacts apportioned to the FFC SPA when combining the Applicant's and Round Four Plan Level HRA's worst case scenario parameters.

Assumptions	Applicant	1	2	3	4	Round Four Plan Level HRA
Displacement rate	50%	40%	40%	50%	40%	40%
Mortality rate	1%	1%	5%	1%	1%	5%
FFC SPA apportionment rate (Breeding bio-season)	55.80%	55.80%	55.80%	10.00%	10.00%	10%
FFC SPA apportionment rate (Post-breeding migration bio-season)	3.38%	3.38%	3.38%	3.38%	3.38%	3.38%
FFC SPA apportionment rate (Migration-free winter bio-season)	2.74%	2.74%	2.74%	2.74%	2.74%	2.74%
FFC SPA apportionment rate (Return migration bio-season)	3.38%	3.38%	3.38%	3.38%	3.38%	3.38%
Predicted Impact (Breeding adult mortalities per annum)						
	1.9	1.6	7.8	1.1	0.8	4.2

Table 8: Data Sources for Collision Risk Modelling (CRM) – Kittiwake

Data Source	Relevance and Commentary
Joint SNCB (2014)	**Avoidance Rates** Joint SNCB advice note providing SNCB's preferred avoidance rates for assessing seabirds at risk of collision, which both the Applicant and Natural England have used for kittiwake collision risk assessment. The positions provided are primarily based on SNCB's review of the Cook et al. (2014) paper, which reviewed and critiqued known avoidance behaviour of five priority seabird species (gannet, kittiwake, lesser black-backed gull, herring gull and great black-backed gull) to derive OWF species specific avoidance rates. SNCBs concluded that for kittiwake, the avoidance rate derived for 'all gulls' should be used instead of the species-specific avoidance rate or even the 'small gull' avoidance rate, which both resulted in a higher overall avoidance rate. No update has been made to the SNCB advice note in the eight years since publication despite multiple new studies of seabird avoidance being published providing a significant pool of additional empirical evidence for consideration (Bowgen and Cook, 2018; Skov et al. 2018; Cook, 2021).
Alerstam et al. (2007)	**Flight Speeds** Study citing seabird flight speeds based on radar tracking measurements of birds primarily on straight line migration in Sweden and the Arctic, which Natural England and the Applicant have used for defining kittiwake flight speed. The data within this study is based on a very small sample size, has no relation to birds interacting with OWFs and does not include data on foraging flight behaviour or avoidance manoeuvres in reaction to the presence of turbines. The flight speeds cited within this study may be a useful benchmark for use in CRM in the absence of data collected from OWFs. However, following multiple studies since 2007 the data can be considered of low relevance to OWF CRM assessments and is likely to overestimate collision impacts due to being significantly different to flight behaviour observed within OWFS based on more extensive sample sizes (Skov et al. 2018; Masden, 2015), thus leading to increased predicted impacts and greater uncertainty in CRM assessments.
Garthe and Hüppop (2004)	**Natural England's Nocturnal Activity Rate** Study which produced among other behavioural factors a sensitivity scoring index of nocturnal activity of seabird species based on literature review and personal observations, which have subsequently been translated into nocturnal activity rates for use in CRM assessments and form the evidence base for Natural England's preferred nocturnal activity rates. The translated nocturnal activity rates are subjectively defined

	and are significantly higher than observed species nocturnal activity rates (MacArthur Green, APEM & Royal HaskoningDHV 2015; Skov et al. 2018; Masden 2015). The translated nocturnal activity rates derived from this study can be considered of low confidence, due to being significantly different to actual observed nocturnal activity rates, thus leading to an increased predicted impact and greater uncertainty in CRM assessments.
MacArthur Green, APEM & Royal HaskoningDHV (2015)	**The Applicant's Nocturnal Activity Rate** Evidence review of nocturnal flight activity for seabird species of highest collision risk concern, which included kittiwake. Data loggers were deployed to monitor the actual levels of nocturnal flight activity of seabirds, the results of which found activity was significantly lower than that suggested by Garthe and Hüppop (2004). For kittiwake, nocturnal activity during the breeding season was calculated as 0% and during the non-breeding season was calculated as 12%. The Applicant used these results for determining it's advocated nocturnal activity rate.
Robinson (2005)	**Species Biometrics** Data source for deriving the kittiwake average body length and wingspan.
G4.7 Ornithological Assessment Sensitivity Report (REP6-026)	**Kittiwake Breeding bio-season component months** The Applicant's rationale for assessing against the migration-free breeding bio-season is provided in Section 2.5.4 of G4.7 Ornithological Assessment Sensitivity Report (REP6-026).
G5.25 Ornithology Environmental Impact Assessment (EIA) and Habitats Regulations Assessment (HRA) Annex (REP6-028)	**Kittiwake Apportionment to FFC SPA** The Applicant's approach to apportionment is detailed in Section 2.4 of G5.25 Ornithology Environmental Impact Assessment (EIA) and Habitats Regulations Assessment (HRA) Annex (REP6-028).
Masden, (2015)	**Supporting evidence for over precaution in current assessments** Study undertaken for Marine Scotland Science to develop a CRM model which incorporated variability and uncertainty. The study gave an example work through using kittiwake, which for the flight speed and nocturnal activity rates relied upon the use of RSPB Fame telemetry data resulting in a flight speed of 7.26 ms-1 and a nocturnal activity rate of 3.3%, significantly lower than advocated by SNCBs currently for assessment. As summarised in G4.7 Ornithological Assessment Sensitivity Report (REP6-026) if the Applicant was to adopt a flight speed of 7.26 ms-1 then a reduction of 32.93% would result in predicted collisions per annum

	or if the Applicant was to adopt a nocturnal activity value of 3.3% then a reduction of 13.46% would result in predicted collisions per annum.
Skov et al. (2018)	**Supporting evidence for over precaution in current assessments** The offshore Renewables Joint Industry Programme (ORJIP) bird collision avoidance study aimed to improve the evidence base for seabird collision risk assessments from OWFs. Thanet OWF was the study site of interest, with data collected over a two-year period using a mixture of seabird observers with laser rangefinders, automated tracking camera systems and radars. Both the automated camera system and radar were operational for diurnal and nocturnal monitoring. The ORJIP study has produced the most significant and extensive datasets in relation to seabird interaction with OWFs to date, the results of which suggests that there is likelihood for significant over precaution in all current SNCB advocated assessment parameters comparatively to the actual observed collision risk during the two years of monitoring. As summarised in G4.7 Ornithological Assessment Sensitivity Report (REP6-026) if the Applicant was to adopt a single input parameter derived from Skov et al. (2018), then a reduction of between 13.46-81.82% would result in predicted collisions per annum.
Bowgen & Cook (2018)	**Supporting evidence for over precaution in current assessments** Study utilising the data collected from the ORJIP study (Skov et al. 2018) providing consideration on how to include the empirical data collected in order to inform collision risk assessment from proposed OWFs. The recommended avoidance rates from the study were found to be significantly higher than previously cited in Cook et al. (2014) / JNCC (2014). As summarised in G4.7 Ornithological Assessment Sensitivity Report (REP6-026) if the Applicant was to adopt the BO2 avoidance rate of 0.990 recommended from Bowgen & Cook (2018) then a reduction of 9.09% would result in predicted collisions per annum or if Applicant was to adopt the BO3 avoidance rate of 0.980 recommended from Bowgen & Cook (2018) then a reduction of 74.52% would result in predicted collisions per annum.
G4.7 Ornithological Assessment Sensitivity Report (REP6-026)	**Supporting evidence for over precaution in current assessments** Report detailing the areas of precaution and uncertainty within current assessment approaches and the implications of improving assessments through the incorporation of empirical evidence has on predicted impacts for key species.
Offshore Wind Leasing Round 4 Plan Level HRA, RIAA Annex H.3 Apportioning (NIRAS, 2022a)	**Round 4 Plan Level HRA Apportioning Rationale**

	Annex providing the Round 4 Plan Level HRA apportioning methods and rationale.
Offshore Wind Leasing Round 4 Plan Level HRA, RIAA Appendix H Ornithology Array Assessment Part 2 (NIRAS, 2022b)	**Round 4 Plan Level HRA Assessments** Appendix providing the Round 4 Plan Level HRA assessments against designated sites and features including the FFC SPA.
Offshore Wind Leasing Round 4 Plan Level HRA, RIAA Annex H.2 Collision Risk Modelling (NIRAS. 2022c)	**Round 4 Plan Level HRA CRM Report** Annex providing the Round 4 Plan Level HRA CRM methods and results.

Table 9: CRM Parameters – Kittiwake

Parameter	Applicant's position and data source	Position taken in Round 4 plan-level HRA (Preferred projects)	NE's position and data source	Commentary
Avoidance rate (BO2)	0.989 Joint SNCB (2014)	0.989 & 0.990 (1, 2 & 3) Joint SNCB (2014) & Bowgen and Cook (2018)	0.989 Joint SNCB (2014)	The joint SNCB (2014) advocated avoidance rates for kittiwake have been applied for all assessments. The Round 4 Plan Level HRA also presented collision estimates (NIRAS, 2022c) using the species-specific avoidance rate recommended in Bowgen and Cook (2018), although should be noted considered that the BO2 collision estimates were not considered the most likely worst case impact and weren't the estimates used for assessment (NIRAS, 2022b).
Avoidance rate (BO3)	Not assessed	0.980 (1, 2 & 3) Bowgen and Cook (2018)	Not assessed	As presented within A5.5.3 Environmental Statement Offshore Ornithology Collision Risk Modelling (APP-076) the Applicant did include collision risk results using this avoidance rate, but due to Natural England disagreeing with it for assessment did not inform assessments presented within 2.5 Environmental Statement Offshore Intertidal Ornithology (APP-017). As detailed within the Round 4 Plan Level HRA (Paragraph 6.1.245 of NIRAS, 2022b) the author considered this to be the most

				appropriate avoidance rate for informing impacts. For reference the Applicant assessed what difference using this avoidance rate would have on predicted impacts from Hornsea Four within the **G4.7 Ornithological Assessment Sensitivity Report (REP6-026)**, the result of which was a reduction in predicted impacts by 74.52% per annum.
Flight Speed (ms-1)	13.10 Alerstam et al. (2007)	13.10 & 8.71 (1, 2 & 3) Alerstam et al. (2007) & Skov et al. (2018)	13.10 Alerstam et al. (2007)	The Alerstam et al. (2007) was incorporated into all assessments. For the Round 4 Plan Level HRA the flight speed produced from Skov et al. (2018) was also modelled and considered the more suitable value for assessment (Paragraph 3.2.5 of NIRAS, 2022c). For reference the Applicant assessed what difference using a flight speed of 8.71 ms-1 would have on predicted impacts from Hornsea Four within the G4.7 Ornithological Assessment Sensitivity Report (REP6-026), the result of which was a reduction in predicted impacts by 24.94% per annum.
Nocturnal Activity	25% MacArthur Green, APEM & Royal HaskoningDHV 2015	25-50% (1, 2 & 3) Garthe and Hüppop (2004) & SNCB advice	50% Garthe and Hüppop (2004)	The Round 4 Plan Level HRA assessed using both the nocturnal activity values advocated by the Applicant and Natural England. The author suggested that based on the wealth of studies citing information on species nocturnal activity it likely the values suggested by Garthe and Hüppop (2004) over-estimate

				nocturnal activity (Paragraph 3.2.3 of NIRAS, 2022c).
Species Biometrics (Body Length; m)	0.39 Robinson (2005)	0.39 (1, 2 & 3) Robinson (2017)	0.39 Robinson (2005)	0.39m body length used for all assessments.
Species Biometrics (Wingspan; m)	1.08 Robinson (2005)	1.08 (1, 2 & 3) Robinson (2017)	1.08 Robinson (2005)	1.08m wingspan used for all assessments.
FFC SPA Apportionment (Breeding adult apportionment; %)	93.68	90.75 (1), 95.24 (2) & 94.92 (3)	100.00	The SNH apportionment guidance (2018) has been followed by both the Applicant and the Round 4 Plan Level HRA (Section 3 of NIRAS, 2022a) for apportionment of impacts to breeding adults during the breeding season. Natural England requested that 100% of impacts should be apportioned to breeding adults during the breeding season based on opinion (REP5-115).
FFC SPA Apportionment (immature apportionment; %)	31.00	43.86 (1, 2 & 3) Furness (2015)	5.55	The approach taken for derivation of immature apportionment for the Round 4 Plan Level HRA (Section 3.3 of NIRAS, 2022a) and the Applicant was to both use the population generic stable age structure derived from Furness (2015), due to the difficulties in identifying juvenile and immature kittiwakes. Despite the inherent issues with identifying juvenile and immature kittiwakes, Natural England requested site specific survey data be utilised for their apportionment approach (REP5-115).

FFC SPA Apportionment (Sabbatical apportionment; %)	10	10 (1, 2 & 3)	0.00	The approach taken for derivation of sabbatical apportionment for the Round 4 Plan Level HRA (Section 3.4 of NIRAS, 2022a) and the Applicant was to use the guidance produced by Marine Scotland (2017). Natural England's apportionment method did not consider the proportion of sabbaticals likely to be present within Hornsea Four (REP5-115).
FFC SPA Apportionment (Breeding season apportionment total; %)	58.17	46.00 (1) & 48.00 (2,3)	94.45	The Applicant's overall apportionment approach follows the same approach taken for the Round 4 Plan Level HRA (NIRAS, 2022a) as detailed above. Natural England's approach varies significantly due to different approach taken for all elements of the breeding season apportionment process as detailed above.
FFC SPA Apportionment (post-breeding migration season; %)	7.19	7.19 (1, 2 & 3)	7.19	The same standard return migration apportionment values have been used for all assessments.
FFC SPA Apportionment (return migration season; %)	5.44	5.44 (1, 2 & 3)	5.44	The same standard post-breeding migration apportionment values have been used for all assessments.

3 The Applicant's final position on EIA outputs and conclusions

3.1.1.1 As detailed in the meeting minutes for the EP Technical Panel Meeting 16 (**REP05-080**), the following final approach for baseline characterisation and the most appropriate data sources for use in impact assessments was agreed with Natural England:

- Gannet collision risk modelling – Assessed using MRSea_V2 seabird density estimates;
- Gannet displacement analysis – Assessed using design-based abundance estimates;
- Kittiwake collision risk modelling – Assessed using MRSea_V2 seabird density estimates;
- Great black-backed gull collision risk modelling – Assessed using design-based abundance estimates;
- Guillemot displacement analysis – Assessed using MRSea_V2 seabird density estimates;
- Razorbill displacement analysis – Assessed using design-based abundance estimates;
- Puffin displacement analysis – Assessed using design-based abundance estimates;

3.1.1.2 Following revised assessments as presented within the **G5.25 Ornithology Environmental Impact Assessment (EIA) and Habitats Regulations Assessment (HRA) Annex (REP6-028)**, the differences in assessment compared to **A2.5 Environmental Statement Offshore Intertidal Ornithology (APP-017)** were as follows:

- Gannet collision risk modelling – 20.2 to 17.3, resulting in a reduction of 2.9 predicted mortalities per annum;
- Gannet displacement analysis – 11.3-15.0 to 13.0-17.3, resulting in an increase of between 1.7 to 2.3 predicted mortalities per annum;
- Kittiwake collision risk modelling – 93.3 to 80.6, resulting in a reduction of 12.7 predicted mortalities per annum;
- Great black-backed gull collision risk modelling – 4.3 to 4.4, resulting in an increase of 0.1 predicted mortalities per annum;
- Guillemot displacement analysis – 128.1 to 148.5, resulting in an increase of 20.4 predicted mortalities per annum;
- Razorbill displacement analysis – 23.6 to 28.0, resulting in an increase of 4.4 predicted mortalities per annum; and
- Puffin Displacement analysis – 2.5 to 3.2, resulting in an increase of 0.7 predicted mortalities per annum.

3.1.1.3 The Applicant's final position on EIA significance for ornithological receptors remains the same as concluded **A2.5 Environmental Statement Offshore Intertidal Ornithology (APP-017**), as summarised in table 10 below.

Table 10: Applicant's final position on EIA significance for ornithological receptors.

Impact and Phase	Receptor and value/sensitivity	Magnitude and significance (Project alone)	Magnitude and significance (Project Cumulatively)	Mitigation	Residual impact
Construction					
Construction activities within the array area associated with foundations and WTGs may lead to disturbance and displacement of species within the array and different degrees of buffers surrounding it (ORN-C-1).	Gannet Not applicable	Negligible Not Significant	N/A	None proposed beyond existing Commitments	Not Significant
	Guillemot Not applicable	Negligible Not Significant	N/A	None proposed beyond existing Commitments	Not Significant
	Razorbill Not applicable	Negligible Not Significant	N/A	None proposed beyond existing Commitments	Not Significant
	Puffin Not applicable	Negligible Not Significant	N/A	None proposed beyond existing Commitments	Not Significant
Indirect impacts during the construction phase within the array area through effects on habitats and prey species (ORN-C-2).	All species Not applicable	Negligible Not Significant	N/A	None proposed beyond existing Commitments	Not Significant
Construction activities associated with export cable laying may lead to disturbance and displacement of species within the ECC and different degrees of buffers surrounding it (ORN-C-3).	Red-throated diver Not applicable	Negligible Not Significant	N/A	None proposed beyond existing Commitments	Not Significant
Construction activities associated with trenching, laying and reburial of the	Sanderling Not applicable	Negligible Not Significant	N/A	None proposed beyond existing Commitments	Not Significant

export cable through the intertidal zone may lead to disturbance and displacement of waterbird species in close proximity to the works (ORN-C-4).					
Operation					
Operational activities associated with moving turbines and maintenance vessels may lead to disturbance and displacement of species within the array area and different degrees of buffers surrounding it (ORN-O-5).	Gannet Not applicable	Negligible Not Significant	Negligible Not Significant	None proposed beyond existing Commitments	Not Significant
	Guillemot Not applicable	Negligible Not Significant	Minor Slight	None proposed beyond existing Commitments	Not Significant
	Razorbill Not applicable	Negligible Not Significant	Minor Slight	None proposed beyond existing Commitments	Not Significant
	Puffin Not applicable	Negligible Not Significant	Minor Slight	None proposed beyond existing Commitments	Not Significant
Seabirds flying through the array area during the operational phase are at risk of collision with WTG rotors and associated infrastructure (ORN-O-6).	Gannet Not applicable	Negligible Not Significant	Minor Slight	None proposed beyond existing Commitments	Not Significant
	Kittiwake Not applicable	Negligible Not Significant	Minor Slight	None proposed beyond existing Commitments	Not Significant
	Lesser black-backed gull Not applicable	Negligible Not Significant	Negligible Not Significant	None proposed beyond existing Commitments	Not Significant
	Herring gull Not applicable	Negligible Not Significant	Negligible Not Significant	None proposed beyond existing Commitments	Not Significant

	Great black-backed gull Not applicable	Negligible Not Significant	Minor Slight	None proposed beyond existing Commitments	Not Significant
Combined impact from operational activities associated with moving turbines and maintenance vessels may lead to disturbance and displacement (ORN-O-5) and the risk of collision with WTG rotors and associated infrastructure (ORN-O-6).	Gannet Not applicable	Negligible Not Significant	Minor Slight	None proposed beyond existing Commitments	Not Significant
Migrant non-seabirds flying through the array area during the operational phase are at risk of collision with WTG rotors and associated infrastructure(ORN-O-7).	All species Not applicable	Negligible Not Significant	Negligible Not Significant	None proposed beyond existing Commitments	Not Significant
Indirect impacts within the array area during the operational phase through effects on habitats and prey species (ORN-O-8).	All species Not applicable	Not applicable Not Significant	Negligible Not Significant	None proposed beyond existing Commitments	Not Significant
The presence of WTGs could create a barrier to the migratory or regular foraging movements of seabirds (ORN-O-9).	Gannet Not applicable	Negligible Not Significant	Minor Slight	None proposed beyond existing Commitments	Not Significant
	Kittiwake Not applicable	Negligible Not Significant	Minor Slight	None proposed beyond existing Commitments	Not Significant

The impact of attraction to lit structures by migrating birds in particular (ORN-O-14).	All species Not applicable	Negligible Not Significant	Minor Slight	None proposed beyond existing Commitments	Not Significant
Decommissioning					
Indirect impacts during the decommissioning phase within the offshore ECC and landfall through effects on habitats and prey species (ORN-D-13).	All species Not applicable	Not applicable Not Significant	N/A	None proposed beyond existing Commitments	Not Significant

4 The Applicant's final position on HRA outputs and conclusions

4.1.1.1 Following revised assessments as presented within the **G5.25 Ornithology Environmental Impact Assessment (EIA) and Habitats Regulations Assessment (HRA) Annex (REP6-028)**, the differences in assessment of impacts apportioned to the FFC SPA compared **to B2.2 RP Volume B2 Chapter 2 Report to Inform Appropriate Assessment (APP-169)** were as follows:

- Gannet collision risk modelling – 8.5 to 7.1, resulting in a reduction of 1.4 predicted mortalities per annum (excluding the inclusion of macro avoidance);
- Gannet displacement analysis – 3.2-4.3 to 4.0-5.3, resulting in an increase of between 1.0 to 1.2 predicted mortalities per annum;
- Kittiwake collision risk modelling –21.2 to 23.3, resulting in a increase of 2.1 predicted mortalities per annum;
- Guillemot displacement analysis – 35.1 to 39.5, resulting in an increase of 4.4 predicted mortalities per annum;
- Razorbill displacement analysis – 1.5 to 1.9, resulting in an increase of 0.4 predicted mortalities per annum; and
- Puffin Displacement analysis – 0.7 to 0.9, resulting in an increase of 0.2 predicted mortalities per annum.

4.1.1.2 The Applicant's final position on AEoI in relation to the qualifying features of the FFC SPA for ornithological receptors is summarised in Table 11 below. For all other ornithological assessments undertaken within **B2.2 RP Volume B2 Chapter 2 Report to Inform Appropriate Assessment (APP-169)** the Applicant's position remains that an AEoI can be ruled out for the project alone and in-combination with other planned and consented projects.

Table 11: Applicant's final position on AEoI in relation to the qualifying features of the FFC SPA

Designated Site	Relevant Features	Potential for Effect	Conclusion on Adverse Effect (Alone)			Conclusion on Adverse Effect (in-combination)		
Flamborough and Filey Coast SPA	Gannet Guillemot Razorbill Puffin	Disturbance and displacement	No potential for AEoI	No potential for AEoI	No potential for AEoI	N/A	No potential for AEoI	N/A
	Gannet Herring gull	Collision risk	N/A	No potential for AEoI	N/A	N/A	No potential for AEoI	N/A
	Gannet	Combined disturbance and displacement with collision risk	No potential for AEoI	No potential for AEoI	No potential for AEoI	N/A	No potential for AEoI	N/A
	Kittiwake	Collision risk	N/A	No potential for AEoI	N/A	N/A	Potential for AEoI cannot be ruled out	N/A
	Seabird Assemblage	Disturbance and displacement	No potential for AEoI	No potential for AEoI	No potential for AEoI	N/A	No potential for AEoI	N/A
		Collision Risk	No potential for AEoI	No potential for AEoI	No potential for AEoI	N/A	No potential for AEoI	N/A

5 The Applicant's HRA Derogation Case

5.1.1.1 The Applicant has provided a derogation case for the kittiwake qualifying feature of FFC SPA and, on a without prejudice basis, for the razorbill, guillemot and gannet (noting that the gannet compensation case has subsequently been removed following agreement with Natural England that AEoI can be ruled out) qualifying features of FFC SPA.

5.1.1.2 Unlike previous offshore wind farms (OWFs) consented via derogation, proposed compensatory measures were the subject of substantial consultation during the pre-application stage. The full and detailed derogation case has also been available for examination throughout the full Examination timetable. It is a robust package and goes far beyond the detail provided in a derogation case for any other OWF project DCO prior to the point of consent.

5.1.1.3 The Applicant has clearly demonstrated, in the context of FFC SPA, that there are no alternative solutions to Hornsea Four which would meet the project objectives (see Part 2 of **B2.5: Without Prejudice Derogation Case,** with the most recent version at **REP1-014**).

5.1.1.4 The Applicant has clearly demonstrated that there are imperative reasons of overriding public interest (IROPI) in Hornsea Four being consented (see Part 3 of **B2.5: Without Prejudice Derogation Case, REP1-014**). Whilst the Applicant's IROPI case set out in that document relates to the Applicant's predicted impacts at the point of Application, the Applicant submits that the public interest and urgency in the delivery of Hornsea Four is so imperative that IROPI is established even on assessment outputs using SNCB parameters, should the Secretary of State favour those. The IROPI case has also materially strengthened since the point of DCO application (see section 6 below).

5.1.1.5 The Applicant has provided comprehensive and well-evidenced compensation plans, identifying a suite of compensatory measures for each of the key species, should compensatory measures be required (noting the Applicant maintains there is no AEoI for guillemot and razorbill and the Applicant and NE are now in agreement that AEoI for gannet can be excluded). The final versions of these plans can be found at:

- B2.7 Kittiwake Compensation Plan (**REP7-TBC**)
- B2.8 Guillemot and Razorbill Compensation Plan (**REP7-TBC**)

5.1.1.6 As NE's Deadline 6 submission (**REP-6-057**) confirms NE's view there is no risk of AEoI on gannet, the Applicant has not submitted updated versions of these documents for gannet at Deadline 7, with the most recent versions being those submitted at Deadline 6. The predicted compensation values required for the different impact assessment positions are presented in **Appendix B** of **G7.2 Applicant's comments on other submissions received at Deadline 6** (submitted at Deadline 7). The Applicants position is detailed within the **B2.6: Compensation measures for FFC SPA Overview (REP7-TBC)** and the Compensation Plans **B2.7 Kittiwake Compensation Plan (REP7-TBC)** and **B2.8 Guillemot and Razorbill Compensation Plan (REP7-TBC)**.

5.1.1.7 These documents demonstrate the substantial progress made by the Applicant to advance the compensation measures during the pre-application stage and since the point of application including:

- For the impact upon kittiwake, offshore nesting whereby in the case of a new structure the Applicant has narrowed the potential location to a preferred area ecologically in consultation with stakeholders and in the case of a repurposed structure has completed an MoU to potentially repurpose the Wenlock Platform.
- For the impact upon kittiwake, onshore nesting has been refined to focus upon coastal and nearshore locations in Cayton Bay to Newbiggin by the Sea.
- For the impact upon razorbill and guillemot, bycatch reduction utilising the looming eyes buoy along the south coast of England.
- For the impact upon razorbill and guillemot, a predator eradication programme located in the Bailiwick of Guernsey.
- For all species, fish habitat enhancement (resilience measure) already initiated to restore seagrass in the Humber Estuary with support from the Yorkshire Wildlife Trust and the University of Hull.

5.1.1.8 The compensation measures are therefore substantially advanced when compared to the level of detail accepted by the Secretary of State for previous OWF derogation cases and can continue to be refined and development post-consent, should the Secretary of State require them to be delivered. It can be noted that it has been a common theme of comments from certain IPs across all recent OWF projects relying on derogation, that proposed compensation measures were not sufficiently detailed and must be developed further prior to the decision-making stage, and that it is not appropriate to rely on post-examination consultation. Nevertheless, the Secretary of State has (rightly) been satisfied that the detail was sufficient at this stage and that provisions in the DCO adequately secure the delivery of any necessary compensatory measures. In any event the Applicant has far exceeded the amount of work undertaken by other OWF developers at this stage. This has been acknowledged by Natural England in particular on numerous occasions.

5.1.1.9 The Applicant has included drafting to secure the compensatory measures for kittiwake in article 49 and Schedule 16 of the draft DCO. Drafting to secure compensatory measures for the other species has been provided on a "without prejudice" basis in document **G3:12 Without Prejudice Derogation Draft Development Consent Order (DCO) Schedules** (updated document provided at Deadline 7). Again, the drafting draws on, and is not materially different to equivalent provisions found in all other made DCOs for offshore wind farms, including the Hornsea Three Offshore Wind Farm Order 2020, the Norfolk Boreas Offshore Wind Farm Order 2021, the Norfolk Vanguard Offshore Wind Farm Order 2022, the East Anglia TWO Offshore Wind Farm Order 2022 and the East Anglia ONE North Offshore Wind Farm Order 2022.

5.1.1.10 During Examination, the Applicant included an option in the DCO / without prejudice drafting for a payment to be made to the soon to be established Marine Recovery Fund (MRF) (or equivalent fund), in lieu of delivering one or more compensation measures, or as adaptive management. This option was included in recognition of the strong commitment to strategic compensation, including for those projects already in the system, in the British Energy Security Strategy (BESS). As an unequivocal commitment in published Government policy, weight can be attached. This drafting has been included as an "option", to provide flexibility as to the means and form of compensation that can be delivered post-consent.

There is no down-side to including this optionality. The Applicant's package of project-specific compensation measures has not been withdrawn and will remain secured should a contribution to the MRF not be made, or if the MRF (or equivalent fund) is not in place in sufficient time. The proposed DCO drafting (updated at Deadline 7) secures delivery of project-specific compensation measures, with a contribution to the MRF (or equivalent fund) in lieu of project-specific compensation measures only available to the undertaker if approved by the Secretary of State in consultation with the Offshore Ornithological Engagement Group.

5.1.1.11 The Applicant also formalised its commitment to make a payment of £500,000 to fund research into strategic compensation (considered likely to be prey availability research), by securing a commitment for this sum to be paid by the Applicant to the MRF (or equivalent fund), if such a fund has been established at the relevant time (prior to operation of Hornsea Four). This is a benefit of the scheme which is in addition to the delivery of compensatory measures, or a payment to the MRF (or equivalent fund) in lieu of such measures (as outlined in the previous paragraph).

5.1.1.12 Overall, the Applicant is confident in its derogation package, and its ability to implement the compensatory measures as necessary pending the conclusions of the Secretary of State's HRA.

6 Hornsea Four and the energy landscape – Closing remarks

6.1.1.1 For the reasons summarised in this paper, the Applicant has provided a suitably precautionary assessment of the impacts of Hornsea Four on key ornithology species drawing on the latest and best available scientific evidence. Provided due regard is given to NE advice, the Examining Authority and the Secretary of State are entitled on the evidence to rely on the Applicant's final position on assessment parameters and outcomes as confirmed in Section 3 and 4. However, the Applicant has also provided a suitable comprehensive derogation case, as a fallback.

6.1.1.2 Notwithstanding the above, the Applicant wishes to reaffirm the importance of Hornsea Four in the energy landscape in the UK.

6.1.1.3 Hornsea Four is a nationally significant renewable energy power project. It will provide a significant capacity of electricity to the national grid from a clean power source. It will contribute to energy security and resilience, whilst offering an alternative to fossil fuels and helping to mitigate the ever more apparent impacts of climate change. The impacts of climate change include significant threats to human beings and the environment, including seabirds.

6.1.1.4 The need for Hornsea Four has been established in **F1.6 Statement of Need (REP7-TBC)**. The Applicant has in turn demonstrated the IROPI in consenting Hornsea Four in Part 3 of **B2.5: Without Prejudice Derogation Case [REP1-014]** and those submissions are not repeated here. The need for Hornsea Four and in turn the IROPI for granting consent has materially

increased since point of application as set out in the Addendum to the Statement of Need which is provided alongside this submission at Deadline 7.

6.1.1.5 Not only has the need for and importance of delivering Hornsea Four materially increased since the point of application, so too has the urgency. The BESS is clear that Government policy is to rapidly build a British energy system that is much more self-sufficient. Offshore wind, is a key component of that policy, as explicitly reflected in the BESS.

6.1.1.6 The BESS is explored in Appendix A of **F1.6 Statement of Need (REP7-TBC)**, but the following fundamental principles of Government policy bear repeating here (emphasis added):

- 6.6.1 "..we need to be bolder in removing the red tape that holds back new clean energy developments and exploit the potential of all renewable technologies";
- 6.6.2 "Accelerating the transition from fossil fuels depends critically on how quickly we can roll out new renewables";
- 6.6.3 "Our ambition is to deliver up to 50GW by 2030, including up to 5GW of innovative floating wind";
- 6.6.4 "On planning, these projects tend to have public support, and ultimately benefit the environment because they help reduce the damage to habitats that is caused by climate change";
- 6.6.5 "We will cut the process time by over half by:

  ....
- making environmental considerations at a more strategic level allowing us to speed up the process while improving the marine environment;

  ...
- introducing strategic compensation environmental measures including for projects already in the system to offset environmental effects and reduce delays to projects;

  ...
- implementing a new Offshore Wind Environmental Improvement Package including an industry-funded Marine Recovery Fund and nature-based design standards to accelerate deployment whilst enhancing the marine environment"

6.1.1.7 That Government policy must be acted upon and reflected in decision-making. There is no scope for delay or attrition if energy security and net zero policies are to be delivered.

6.1.1.8 The Applicant has submitted evidence which demonstrates that some SNCB ornithological advice has not fully kept pace with the growing base of evidence and represents a real barrier to large-scale deployment of offshore wind in the Southern North Sea and the UK generally. The implications of adopting advice which compounds precaution are not limited to Hornsea Four. The impacts of Hornsea Four become part of the cumulative baseline for

future projects and, if inflated to unrealistic levels, are likely to have significant ramifications for the delivery of other projects in the pipeline.

6.1.1.9 To put that into context, the Appendix A to the **F1.6 Statement of Need (REP7-TBC)** finds that National Grid's TEC Register lists 51GW of offshore wind projects with connection dates before 2029, of which 20GW are connected or committed to delivery. It finds that 97% of those projects must connect, at their current estimated capacity and without delay, in order to meet the BESS aim of 50GW of offshore wind operational and connected by 2030.

6.1.1.10 As such, the Applicant calls on the Examining Authority and ultimately BEIS to undertake a robust but appropriate assessment of the impacts of Hornsea Four, meeting the legislative requirements, based on reasonable precaution where necessary to address any reasonable scientific doubt. Excessive precaution, applied universally, especially in areas where adequate evidence now exists, has the potential to delay and hinder the ability of the UK to implement its energy policy.

6.1.1.11 In addition, to the extent that compensatory measures are required, the Applicant submits that the current approach, of delaying operation of the project to several years post-implementation of the compensatory measures, is not aligned with policy in the BESS, nor does it align with the conclusion, in the context of a derogation case, that urgently delivering offshore wind to provide energy security and mitigate climate change, is an imperative that overrides the normal protections accorded to European sites. Nor is it a legal requirement of the Habitats Regulations. It is disproportionate in that it means that the environment is deprived of several years of much needed clean power generation.

6.1.1.12 It is also for this reason that the Applicant has proposed an alternative mechanism for delivering compensatory measures via the MRF. This would likely enable Hornsea Four to be delivered more quickly and in a manner which is more likely to maximise environmental benefits due to the strategic nature of the measures that can be delivered through the fund.

6.1.1.13 The Applicant included a time-lag between implementation of compensatory measures and operation of the wind farm in its drafting to secure compensatory measures, in line with previous decisions. However, previous decisions are not binding precedent and, in the Applicant's submission, it is open to the Secretary of State, consistent with a change in policy as set out in the BESS, to remove those timescales. The Applicant urges the Secretary of State to do so.

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