

Hornsea Offshore Wind Farm

Project Two

The Applicant's Response to RSPB's Written Representation

Appendix J to the Response submitted for Deadline II

Application Reference: EN010053

10 August 2015

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Appendix J - The Applicant's response to RSPB's Written Representation

The Applicant notes that within RSPB's written representation they have raised a number of concerns. RSPB state their primary concern is the location of the windfarm in relation to the Flamborough and Filey Coast pSPA (formerly the Flamborough and Bempton Cliffs SPA). They have also stated they are concerned about the robustness of the assessment due to the following issues, and due to these deficiencies they cannot rule out adverse effects on the pSPA:

- Collision Risk modelling (the assessment to gannet, kittiwake, lesser black-backed gulls, including the use of the extended band model and the avoidance rates adopted);
- Disturbance and displacement (for guillemot, razorbill and puffin, including the extent of buffer zones adopted);
- PBR (the continued use of PBR as a means of assessing the overall impact of the project and the associated reliance on PVA analysis).

RSPB have also raised concerns about onshore impacts on the Humber Estuary SPA in relation to cable installation.

The Applicant has responded to each of the points raised by RSPB in turn.

1. Protected Sites and Species

The Applicant notes that RSPB have presented the citations and conservation objectives for the Flamborough and Bempton Cliffs SPA and the revised citation and proposed conservation objectives for the Flamborough and Filey Coast pSPA. It is the Applicant's understanding that Natural England and JNCC consulted on the proposed extension to the Flamborough and Bempton Cliffs SPA in January 2014 and it is the Applicant's understanding that at present the conservation objectives for the site are not yet finalised.

2. Legalisation and Policy Background

The Applicant does not propose to comment in depth on the various legislative and policy references within Section 3 of the RSPB's written representation. However, in relation to the commentary regarding alternative solutions to the Project raised in the RSPB written representation, the Applicant wishes to re-iterate its position that it does consider there to be any potential for the Project to have an adverse effect on the integrity of the Flamborough and Filey Coast pSPA (either alone, or cumulatively with other projects). Accordingly, the Applicant does not consider the question of alternative solutions to be a relevant one as this question would only emerge in the event that the Secretary of State does not accept the Applicant's primary position stated above.

The Applicant would make a very general point, however, that it considers the question of alternatives to be a false premise in the context of the Project.

The concept of alternatives must be seen and gauged against the purpose and nature of the individual project subject to the assessment. In the case of the Project, as noted in Section 8 of the Statement of Reasons, the Project is principally designed to deliver renewable energy generating capacity for the UK to address the need for such in accordance with the UK's legal obligations.

Regulation 3 of The Promotion of the Use of Energy from Renewable Sources Regulations 2011 (2011/243) places a duty on the Secretary of State to ensure that at least 15% of energy consumption in the UK is from renewable sources by 2020. Crucially, this key target is unconstrained. It is not a fixed percentage or a cap and, accordingly, the Applicant would submit that there can be no ruling out of projects meeting an unconstrained need on the basis of alternative solutions.

The central objective of the current UK Government energy policy is to ensure the security of energy supply whilst responding to the challenge of climate change by reducing carbon emissions. To meet these objectives, it is recognised that more energy infrastructure is needed with an increased emphasis on energy generation from renewable and low carbon sources. The need for this infrastructure is fully recognised in many areas of Government policy and the need to reduce carbon emissions is further enshrined in European law and international obligations, which has been transposed into a range of UK legislation. The Project will accord with these policies and help compliance with the relevant legislation and so will assist the Government in meeting its energy policy obligations.

3. Collision Risk Modelling

The RSPB has raised four central issues with the Applicant's CRM work which comprise:

- Flight height data collection (and survey methodology);
- Use of the extended band model;
- Avoidance rates; and
- Uncertainty around collision risk outputs.

The Applicant has addressed each of these issues in turn in the subsequent paragraphs.

Flight height data collection (and survey methodology)

Within their written representation RSPB have queried the methodology used to derive density data for birds in flight. General Linear Modelling (GLM) was applied in order to provide upper and lower confidence limits for output densities for birds in flight. The output mean values are considered equivalent to those given in the established (more basic) technique for calculating densities. A comparison of this methodology vs the standard methodology has been undertaken and no significant differences in the outputs were found, it has been agreed with Natural England that the use of the GLM method is appropriate in calculating the density of birds in flight, see paragraph 7 of Table 4.1 in the SoCG with Natural England (Appendix ZZ of the Applicant's response to Deadline I). Therefore the Applicant does not consider there

to be any residual uncertainty regarding the methodology use to derive the density of birds in flight.

RSPB have stated within their response that they are in agreement with Natural England stating that there has been inadequate survey effort undertaken so it is impossible to make a complete assessment. The Applicant would like to highlight to the Ex. A that Natural England have not stated that there is insufficient survey effort to complete an assessment rather they have stated that there was poor survey coverage in December of both survey years and this could affect the assessment of certain species during the non-breeding season. The Applicant has worked with Natural England to address this issue by providing further clarification in Appendix K and L of the Applicant's submission at Deadline I. It has been agreed with Natural England that there is sufficient information to carry out an assessment, see updated SoCG with Natural England in Appendix R of the Response. Therefore the Applicant considers the survey data is suitable for assessment purposes and any uncertainty in the underlying data is considered within the assessment.

RSPB have also questioned the methodology used to determine birds at Potential Collision Height (PCH) during boat-based surveys and the flight heights of birds recorded across a range of tidal heights. Therefore it is considered appropriate to calculate PCH values assuming that all flight heights are relative to Mean Sea Level (MSL). This approach is standard across all offshore wind farm projects. To ensure that PCH values can be calculated in relation to turbine parameters, the tidal height at which bird flight height and turbine parameters are measured need to be consistent. As such in Table C2 of Annex 7.5.5.1 of the Ornithology ES Chapter (Doc Ref 7.2.5) turbine parameters are presented in relation to MSL. If the approach advocated by the RSPB were used, PCH values would be overestimated unless data for bird flight heights was corrected to ensure these data were relative to Highest Astronomical Tide (HAT). To assume that bird flight height data is collected relative to HAT would be overly precautionary and unrealistic as although HATs are the average highest tidal height, they do not occur annually and would certainly not occur at the frequency of the boat-based surveys undertaken at the Project site.

Site-specific PCH values are only used in Option 1 of Band (2012). This option does not incorporate the tidal offset feature included in the Band model, as suggested for use by the RSPB. The minimum and maximum height of rotors which would be affected by a tidal offset, are incorporated into the calculation of PCH values and therefore this feature is not required. When using the site-specific data the only Option to which the use of a tidal offset would apply is Option 4. The RSPB do not advocate the use of Option 4 and therefore it is unclear to the Applicant as to why the RSPB would recommend the use of this feature within Band (2012). Further to this, although a tidal offset can be used for the remaining Options of Band (2012), there is no difference between the collision risk estimates calculated when using a tidal offset or when the tidal offset is incorporated into turbine parameters. The Applicant therefore, does not consider there to be any uncertainty regarding the methodology used to calculate collision related mortality.

Use of the extended band model

RSPB have stated that they do not believe that the extended Band model should be used for either gannet or kittiwake to predict collision risk and that only the basic model should be considered.

The Applicant believes the Extended Band model provides a more accurate representation of collision risk and has used what it deems to be the most appropriate versions of the model based on the species recorded at the Project site. The extended Band model uses modelled flight height distributions to account for the more accurate assumption that the collision risk varies across a turbine's rotor swept area. The outputs of option 3 and 4 of the Band model are therefore considered to be more biologically accurate and remove significant levels of over-precaution which are apparent in the basic Band model. In any case the Applicant has continued to present all four options of the Band model in both the assessment and any clarification notes that have been submitted during the examination process, including Option 2 which is Natural England's favoured output.

Avoidance rates

The RSPB have commented on the application of avoidance rates within the extended model. The RSPB have commented on the Marine Scotland review of avoidance rates and, the Marine Scotland review was unable to calculate species-specific avoidance rates for gannet, kittiwake, lesser black-backed and great black-backed gulls using either the basic or extended model. Where possible the review made recommendations based on the species groups: "all gulls", "large gulls" and "small gulls".

In the basic model, recommendations for kittiwake were based on the small gulls group, for gannet, the all gulls group, and for lesser and great black-backed gulls the large gulls group.

In the extended model, recommendations were made for lesser and great black-backed gulls using the large gulls group.

The Applicant acknowledges the recommendations of the Marine Scotland report, however the Applicant would like to refer the Ex. A to the avoidance rate studies completed for Hornsea Project One which collated and reviewed available empirical data on bird collisions at offshore wind farms both in the UK and overseas to arrive at an estimate for a precautionary avoidance rate for use in the extended Band model. The studies conclude that a 98% avoidance rate (and in some cases 99%) would be precautionary when using the extended Band model, based on evidence of observed collisions.

The Applicant acknowledges the validation and uncertainty within these collision risk models, however, it is the Applicant's view that complete validation of a collision risk model is not feasible in the timeframes of consent. The Applicant has therefore presented outputs from both the basic and extended Band model using a variety of avoidance rates as recommended by Natural England.

Uncertainty.

The RSPB have also commented on accounting for uncertainty and variability in the collision risk model. The Applicant has completed further collision risk modelling using the confidence limits around the density data and flight height data as recommended by Natural England, see Appendix J of the Applicants response to Deadline I. Natural England have agreed that the Applicant has provided updated collision risk outputs that provide confidence in the assessments presented in the ES and HRA, see paragraph 3.2.5 of the SoCG Appendix R of the Applicant's response to Deadline II.

Displacement

RSPB have raised concerns regarding the population estimates derived from the survey data. As described in Appendix L of the Applicant's response the raw data presented within Appendix C of the Ornithology Technical Report (Doc Ref 7.2.5.2) included birds in all sea states and birds out of transect. The Applicant provided further clarification on this issue in Appendix L of their first response, the note presents full breakdown of the raw (i.e. unprocessed) ornithological baseline data collected through a two year programme of boat-based surveys for Hornsea Project Two

It has been agreed with Natural England that the baseline data provided by the Applicant in their first response is appropriate for the purposes of the offshore ornithology assessment, see SoCG with Natural England in Appendix R of the Applicant's response to Deadline II.

RSPB have stated that the displacement assessment should consider a range of displacement rates and that further justification is required for the mortality rates presented within the assessment. The Applicant completed the assessment of displacement effects as recommended by Natural England and JNCC in their interim displacement advice note (NE and JNCC, 2012) using a matrix based approach. It should also be noted that in Natural England's written representation they advise that a range of displacement rates should be used within the assessment, 30-70% and mortality rates of 1-10%, this approach has been followed by the Applicant in the Application.

The Applicant would also like to highlight to the Ex. A that direct mortality is not considered to be the key, or only, consequence of seabird displacement. Displacement is more likely to impact on productivity (for breeding seabirds). The effect of seabird displacement from an offshore wind farm can be considered most simply as a potential depletion in the food supply available to the birds due to the presence of the wind farm and as such assessing displacement using a mortality figure is seen as highly precautionary.

4. Population Level Effects/Thresholds

RSPB have commented on the use of PBR within the HRA assessment and reliance on this analysis in determining the likelihood of an adverse effect on integrity. The Applicant has continued to use PBR as this was the methodology originally recommended and advocated by Natural England. PBR has been used in previous

consent decisions (Gallopier, Triton Knoll, Burbo Bank Extension, Walney Extension, Hornsea Project 1 and Dogger Bank Creyke Beck) when determining potential for an adverse effect on integrity. The Secretary of State's (SoS) HRA report for Hornsea Project 1 drew on the PBR values presented by the Applicant when determining the potential for an adverse effect. However, following comments from both Natural England and RSPB the Applicant has used both PBR and PVA analysis in the drawing their conclusions and will also provide an updated PVA report using demographic rates recommended by Natural England to be submitted at Deadline IIA.

RSPB state within their written representation that a more robust metric output for the PVA would be using the Counterfactual of Population Size (CPS). It is the opinion of the Applicant that the CPS cannot be related back to the Conservation Objectives of a SPA. CPS is an estimate of the expected proportion of an unknown, model projected population size and as such we consider it to be fundamentally flawed for the current assessments. This measure is of academic interest, and it is relatively insensitive to model parameters. Hence, a prediction that a particular population may be 15% smaller with the wind farm than without provides no information about whether or not the population is actually likely to be larger or smaller than the current size. In the context of the SPA Conservation Objective 'to maintain or restore the qualifying populations' this measure alone therefore provides no means to determine the likelihood of adverse effects. Therefore, the Applicant does not consider that the counterfactual approach is useful in this context.

The model output favoured by the Applicant is the predicted change in the population growth rate between impacted and unimpacted simulations. This output has a critical advantage over the RSPB's CPS25 as it can be compared against a biologically derived, objective threshold value.

5. In-combination considerations

The Applicant notes that the RSPB have commented on the use of two tiers for projects within the in-combination assessment and the reduction in collision numbers applied to those projects that have announced reduced capacity since the time of consent. The Applicant will provide an update to the in-combination assessments at Deadline IIA, and the reductions applied to both Triton Knoll and Gallopier wind farms will be removed.

With regard to the tiering applied to the in-combination assessment, this remains unchanged and it has been agreed within Natural England that the use of two tier approach is not of material concern, see SoCG, Appendix R of the Applicant's response to Deadline II.

6. Alternatives

Please see Section 2 of this response where the Applicant has responded to RSPB's comments on alternatives.

7. Onshore - Ecology and Nature Conservation

RSPB have stated within their written representation that their principal concern is in relation to the installation period for the export cable across the intertidal area. The

Applicant would like to clarify that the proposed intertidal works may extend for up to 5 years (see paragraph 3.3.90 of Project description) rather than the 6 years stated by RSPB. The Applicant would also like to highlight that construction activities will not take place between 30th September and 1st April and therefore, will not be continuous.

RSPB have also raised concerns regarding the cumulative effects that might occur as a result of the Project and Hornsea Project One. During the examination of Hornsea Project One the Applicant drafted a DML condition in consultation with the RSPB and Natural England, the principal of which is to restrict construction working around certain high tide periods (see DMLs I and K (A2 and B2) – Condition 20(4)). Following the inclusion of this condition it was agreed there was no potential for an adverse effect on the integrity of the Humber Estuary SPA. In relation to this condition RSPB have also raised concerns about the tide measurement as taken at Grimsby docks, this condition was suggested by Natural England during the examination of Hornsea Project One and as previously stated agreed in consultation with RSPB.

RSPB have stated that the potential effects arising from Hornsea Project Three have not been assessed. The Applicant would like to highlight to the Ex. A that there is currently no publically available information from Hornsea Project Three and therefore this has not been included within the cumulative assessment.

RSPB have requested that detailed construction methods and timings are included within the deemed marine licences A2 and B2 or included within the Ecological Management Plan. The construction methods and timing will be included within the construction method statement and code of construction practice which will be agreed in consultation with Natural England and the MMO.