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Sent: 08 February 2019 17:22

To: Hornsea Project Three

Subject: Hornsea Project Three Deadline 6 Submissions

Good Afternoon,

Please find Natural England's Written Submissions for Deadline 6 of the Hornsea Project Three Offshore Windfarm examination attached.

This includes our written summaries of the Offshore Ecology and DCO Issue Specific Hearings, along with several Annexes which are provided in response to requests made by the Examiner.

Please note Natural England are not providing a response to the Examiners' questions relating to Markham's Triangle MCZ within this submission.

Natural England has reviewed the relevant documents in consultation with JNCC and have prepared a response but we have subsequently received an email from the Applicant offering further clarification. Unfortunately it has not been possible for us to consider this new information in time for today's deadline, but we intend to give this further consideration and provide a response in due course.

Kind regards,

Emma

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Please note I currently work Monday - Thursday

<http://www.gov.uk/naturalengland>

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THE PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010

HORNSEA PROJECT THREE OFFSHORE WIND FARM

Planning Inspectorate Reference: EN010080

NATURAL ENGLAND

WRITTEN SUBMISSION FOR DEADLINE 6

ISH5 Annex G: Natural England's Comments on the Applicant's response to ExA Q2.2.38.

[Ornithology, Cumulative and in-combination Assessment]

Dated 07th February 2019

Natural England's comments on the Applicant's response to ExA Q 2.2.38

Within ISH 5, Natural England were asked to provide comments on the Applicant's response to ExA Q.2.2.38. These comments are presented in the table below.

However, Natural England consider it important to make the overarching point The Crown Estate commissioned the Trinder 2017 report in order to better understand the potential level of 'headroom' for their own purposes (i.e. potentially to inform their decisions on future leasing rounds) and that it was not the intention that the figures from this report, or the methods outlined within in it, were used to revise the in-combination assessments of current and future applications.

Given this, whilst Natural England is happy to answer ExA Questions on this paper and provide the additional comments below, we consider it important to take this opportunity to clarify our position more broadly in relation to the assessment of cumulative and in-combination impacts within the Hornsea Three Application.

Natural England's comments on cumulative and in-combination assessment.

The standard approach to cumulative and in-combination assessments, is to use the consented parameters of the project and to refer to the WCS assessed within the Environmental statement, taking account of any updated assessments provided throughout the examination process.

As highlighted within REP1-148, because Offshore Windfarms are consented based on the Rochdale Envelope approach, the worst case scenarios assessed within the Environmental Statements are often different to the potential 'as-built' impacts. Consequently, as the applicant maintains, the use of collision risk estimates calculated based on assumptions at application or decision, may lead to a potential over-estimate of the total cumulative or in combination assessments in terms of both EIA and HRA.

Within their ES and the additional annex [REP1-148], the applicant is seeking to reassess/redefine collision risk for consented projects where they consider that the predicted 'as-built' scenario for that project is, or is likely to be, different to the WCS that was originally assessed.

*Whilst this is recognised as an issue, it is highly complex, and **it is important to note that there is not yet an agreed and legally tested way to address this matter** at present. As such, applicants have largely continued to use the standard approach of referring back to the original assessments in the Environmental Statement.*

Natural England Advises that is not sufficient for the Applicant to base their assessments on a 'most likely scenario' and that where they seek to redefine project parameters they should provide evidence that options they are assessing are legally secure and that further changes are no longer possible.

*Where the applicant is able to demonstrate that the revisions to the Rochdale Envelope of a particular plan or project **are** legally secure, Natural England would expect that a revised collision risk assessment/displacement be undertaken in line with the revised envelope, with the parameters of such assessment agreed with the regulators (as advised by the appropriate SNCB).*

Natural England recognises that this would be challenging for an individual applicant to achieve, would likely require a nationally co-ordinated approach.

ExA Q 2.2.38 NE has highlighted a number of issues relating to Trinder 2017 in its submission at Deadline 3 [REP3-075]. Please comment on the matters raised.	
Applicant Comment	Natural England Response
The Applicant welcomes the statement by Natural England that the approach applied in Trinder (2017) and subsequently by the Applicant in Volume 2, Chapter 5: Offshore Ornithology (APP-065), the RIAA (APP-051) and Appendix 4 to the Applicant's submission at Deadline 1 (REP1-148) is valid.	Natural England reiterate the comment made at Deadline 3 [REP3-075] that Natural England has not checked the details of the calculation for scaling collisions as set out in MacArthur Green (2017), but in principle the calculation method is valid. However there are a number of issues which mean that the results obtained will not always be accurate and we do not advise that it is used as a method for altering the collision figures of planned and consented projects.

In response to the individual comments:

1. The Applicant has provided references to where turbine specifications have been obtained (Appendix A of Appendix 4 to the Applicant's submission at Deadline 1 (REP1-148)) for relevant projects. Where parameters are unavailable, expert judgement has been applied utilising parameters from projects using comparable turbines or information from turbine manufacturers to provide as accurate an appraisal of collision risk as possible. This is considered to represent a suitably precautionary approach that is unlikely to provide collision risk estimates that are significantly different to those that would be obtained if actual turbine parameters were available. This issue is not considered to have any significant effect on the conclusions reached in Appendix 4 to the Applicant's submission at Deadline 1 (REP1-148);

As highlighted within REP1-148, because Offshore Windfarms are consented based on the Rochdale Envelope approach, the worst case scenarios assessed within the Environmental Statements are often different from the planned or actual 'as-built' layouts. Consequently, as the Applicant maintains, the use of collision risk estimates calculated based on assumptions at application or decision, may lead to a potential over-estimate of the total cumulative or in combination assessments in terms of both EIA and HRA (although under-estimates are also possible at a project level e.g. collision estimates at Lincs OWF increase after application of the correction factor).

Whilst this is recognised as an issue, it is highly complex, and it is important to note that there is not yet an agreed and legally tested way to address this matter at present. As such, developers have largely continued to use the standard approach of referring back to the original collision assessments in the Environmental Statement for consented projects (and any subsequent updates to collision predictions that were agreed during the Examination for a project).

1. Natural England does not agree that the references provided by the Applicant provide a suitable audit trail for the turbine and bird parameters that were a) used to derive the collision figures used in the original project consent and b) the worst case scenario of the legally secured final build layout.

As an example of this, the Applicant has calculated their own correction factor for Greater Gabbard as they say that the turbine parameters used by MacArthur Green (2017) were not correct.

2. The Applicant has ensured that the turbine parameters used in Appendix 4 to the Applicant's submission at Deadline 1 (REP1-148) were those used to calculate the collision risk estimates for relevant projects. This resulted in the use of Approach 3 in Appendix 4 to the Applicant submission at Deadline 1 (REP1-135), which updates the parameters in MacArthur Green (2017) due to this very issue. This issue therefore does not affect the conclusions in Appendix 4 to the Applicant's submission at Deadline 1 (REP1-148);
3. The Applicant has ensured that the number of turbines used is consistent with the modelling used to calculate collision risk estimates for each project. This issue therefore does not affect the conclusions in Appendix 4 to the Applicant's submission at Deadline 1 (REP1-148);

This fact underlines the reason why Natural England do not consider there to be robust evidence available for these corrections. The Applicant cites Banks et al (2006) as the source of the original turbine parameter information to calculate a correction factor for Greater Gabbard (noting that the turbine information in the Applicant's Table 1.29 does not appear to match that given in Banks et al 2006). However the collision risk modelling assessment in Banks et al (2006) is not based on the Band (2012) model, did not include calculations for kittiwake and gannet, and it is not clear whether the P.Collision figures cited in Banks et al (2006) for lesser black backed gull and great black-backed gull have been used to calculate the correction factor or whether the Applicant has calculated alternative P.Collision values using Band (2012). It is also therefore unclear what collision totals for each species the Applicant has used to apply their correction factor to.

In relation to the "as built" layout for projects, the Applicant has simply referenced manufacturer information for particular turbine models as evidence of the "as built" layout, for the majority of projects. While these may reflect the actual built turbine parameters, it is not a sufficient audit trail with respect to individual projects. Natural England also does not agree that it is appropriate to use "expert judgement" as a means of determining the turbine parameters to use in an updated collision risk assessment for a consented project. Natural England do not agree with the Applicant's statement that this is a "suitably precautionary approach" or that it would not have any significant effect on the conclusions. The Applicant has not demonstrated that either of these statements are true.

2. It is not clear to Natural England that the turbine parameters in REP1-148 were those used to calculate the collision risk estimates for the relevant projects. Natural England have not been able to find this information in the references provided by

4. The Applicant has not assumed that all turbine parameters presented in Trinder (2017) are legally secured and has provided consideration of this in Appendix 4 to the Applicant's submission at Deadline 1 (REP1-148). This issue therefore does not affect the conclusions in Appendix 4 to the Applicant's submission at Deadline 1 (REP1-148);

5. The Applicant would welcome further clarification on Natural England in relation to this point with this identifying those parameters that Natural England believe do not have sufficient confidence. The Applicant considers that this does not affect the conclusions reached in Appendix 4 to the Applicant's submission at Deadline 1 (REP1-148) as it was not assumed that the parameter

the Applicant in REP1-148 to support this statement (some examples of this are given below in relation to the information the Applicant has presented in Table 1.29).

3. Natural England have not been able to find this information in the references provided by the Applicant in REP1-148 (see below for examples).
4. While the Applicant acknowledges that they haven't assumed all the turbine parameters in MacArthur Green (2017) are legally secured, the Applicant has presented collision figures for modified turbine parameters for such projects in REP1-148. Further, for those projects where the Applicant has assumed the updated turbine parameters are legally secured they have not provided evidence from the appropriate regulator that this is the case for the turbine parameters they used to calculate the correction factors.
5. As a first stage Natural England considers that the relevant regulator would need to provide confirmation that a modified turbine design envelope is 1) legally secured with no further change possible and 2) represents a worst case scenario in relation to collision predictions. This information would need to include details on number of turbines, rotor radius, blade pitch, max blade width (chord) and average RPM.

Natural England suggest that additional advice is sought from the regulators on this matter.

For projects where revisions to the turbine design parameters can be used to update CRM figures (i.e. there is evidence from the appropriate regulator of a legally secured new design envelope), Natural England would need to agree updated collision risk

The Applicant would draw Natural England's attention to Table 1.29 in Appendix A of Appendix 4 to the Applicant's submission at Deadline 1 (REP1-148) which provides the turbine parameters and associated sources for those projects for which turbine parameters were updated from Trinder (2017).

modelling figures – including bird parameters used in the CRM, which CRM model/option to be used;

Our advice is that CRM should be re-run to generate updated collision figures. Where this is not possible for a project because original bird density data cannot be obtained, we would need to agree whether correction ratios can be calculated (e.g. following MacArthur Green (2017) approach) and see the full calculation details for these correction factors. This will be dependent on whether there is information available on the turbine and bird parameters used to generate the original collision figures.

The information on the as-built turbine scenarios in Table 1.29 cites the source reference as manufacturer technical information on turbine specifications for five of the six projects listed. These references do not provide any information that is specific to the project in question, and therefore provide no information or audit trail regarding the turbines that have been or are planned to be constructed at the relevant project site. Further, there is no information regarding the source of information on the number of turbines in the as-built scenario. The information regarding the assessed turbine scenario also does not provide a clear audit trail to the relevant information. For example, the assessed turbine scenario for Greater Gabbard cites Banks et al (2006), but this reference gives a rotor speed of 14rpm and not 97 rpm as listed in Table 1.29. Banks et al (2006) also cites a pitch of 24 degrees and not 2 degrees as listed in Table 1.29 and a max blade width of 2m not 14m as listed in Table 1.29. It is also not clear whether Banks et al (2006) contains the collision figures that were assessed for the project consent (and therefore what turbine parameters, bird parameters and models were used to derive the collision figures used in the consenting process as there do not appear to be figures presented for some species (e.g. kittiwake and gannet). For Triton Knoll, the Applicant cites RWE npower renewables (2011) as the source of information on the assessed turbine

	<p>scenario, but Table 1.29 says the assessed number of turbines was 288 with a rotor speed of 9.47 rpm and max blade width of 5.45m. However, RWE npower renewables (2011) states that the collision risk modelling was undertaken based on 333 turbines, that rotor speed varied according the month used (from 8.2 rpm to 10.6 rpm depending on the month) and max blade width (chord) was 4.2m.</p> <p>These examples highlight the reason why Natural England do not consider that there is a clear audit trail regarding the turbine and bird parameters used for the original collision risk modelling for consented projects, or the turbine parameters for the configurations that have or are planned to be built, or clear evidence that the collision totals that the Applicant has applied correction factors to were derived using the parameters that the Applicant cites.</p>
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