THE PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010

East Anglia ONE North Offshore Wind Farm

Appendix A16b to the Natural England Deadline 9 Submission

Natural England's Comments on Cumulative and In-combination Collision Risk Update [REP8-035)

For:

The construction and operation of East Anglia ONE North Offshore Wind Farm, a 800MW wind farm which could consist of up to 67 turbines, generators and associated infrastructure, located 36km from Lowestoft and 42km from Southwold.

Planning Inspectorate Reference: EN010077

15th April 2021

Natural England Comments on Offshore Ornithology Cumulative and In-combination Collision Risk Update [REP8-035]

This document is applicable to both the East Anglia ONE North (EA1N) and East Anglia TWO (EA2) applications, and therefore is endorsed with the yellow and blue icon used to identify materially identical documentation in accordance with the Examining Authority's (ExA) procedural decisions on document management of 23rd December 2019. Whilst for completeness of the record this document has been submitted to both Examinations, if it is read for one project submission there is no need to read it again for the other project.

Introduction

This document provides an update on Natural England's position and advice to the following documents submitted by the Applicant at Deadline 8 in relation to Offshore Ornithology Cumulative and In-Combination Collision:

- EA2&EA1N Deadline 8 Offshore Ornithology Cumulative and In-Combination Collision Update [REP8-035]

Summary

1) General Comments

1.1 Natural England welcomes the corrections and updates made by the Applicants to the figures presented in the Tables in Appendix 1 of REP8-035 and we agree with these figures.

1.2 We have the following queries regarding the information presented:

- The last bullet point of paragraph 1 states that: *'the East Anglia Two estimates for gannet and kittiwake apportioned to the Flamborough and Filey Coast SPA have been updated to use the migration free breeding season.'* This sentence contradicts Section 2 of REP8-035, which suggests that the figures for EA2 have been updated to use the full breeding season rather than the migration season (as was done at EA1N following Natural England advice). Clarification is therefore required that it is in fact the full breeding season that has now been used.

- The Applicants' state in paragraph 3 that: '*For the avoidance of doubt the collision risk modelling itself is not affected (i.e. the EIA and CIA figures), the only change is the months which are treated as part of the breeding or non-breeding seasons, and hence what proportion of the total collisions in those months are apportioned to the FFC SPA populations. The changes for East Anglia TWO are provided in Table 1 and incorporated in Appendix 1 (from use of migration free to full breeding season)*.' However, we note that using the full breeding season instead of the migration free breeding season and adjusting the migration months accordingly does alter the collision predictions for the EA2 site alone, and therefore these predictions are the ones that should be taken through to the in-combination total.
- We note that the tables in Appendix 1 for both gannet and kittiwake include figures for EA2 based on use of the migration free breeding season and not the full breeding season. However, we recognise that adjusting these does not significantly alter the in-combination totals for these species.
- We note that there are some errors in the data presented for EIA and HRA for EA2 for gannet in Table A0.1 of Appendix 1 – currently the breeding season collision figure apportioned to the Flamborough and Filey Coast (FFC) SPA exceeds the EIA scale breeding season prediction. The spring migration EIA figure currently exceeds the annual EIA predicted figure, which then affects the FFC SPA apportioned figure for this season. These apparent errors then affect the annual EIA and HRA totals included in the in-combination assessment for EA2, and hence potentially also the cumulative and in-combination predicted totals. Therefore, we advise the Applicants check these figures and totals.
- Based on the seasonal EIA scale figures presented for both projects in Table A0.2 of Appendix 1 of REP8-035, we query what spring migration apportionment rates have been used by the Applicants to arrive at the spring FFC SPA kittiwake collisions of 0.25 for EA1N and 0.5 for EA2. Using the 7.2% spring apportionment rate (as advised by Natural England during the Norfolk Vanguard and Boreas examinations and which appears to have been used by the Applicants for spring apportionment for all the other projects included in the in-combination assessment), we calculate these figures to be 0.7 for EA1N and 1.3 for EA2. This means that the annual totals for the FFC SPA kittiwakes for these sites would be 1.2 for EA1N and 1.7 for EA2. This makes a slight adjustment to the Applicants' in-combination FFC SPA kittiwake totals presented in Table A0.2 of Appendix 1 of REP8-035.

1.3 Projects in-combination: We welcome that the Applicants have presented cumulative collision totals for all confirmed projects (i.e. excluding Hornsea 3, Hornsea 4 and Norfolk Vanguard) and for including all projects for gannet, lesser black-backed gull and great black-backed gull. We note that for cumulative collisions (EIA scale) for kittiwake, the Applicants have presented totals for all projects and all projects excluding Hornsea 4 and Norfolk Vanguard. As the Hornsea 3 project has not provided updated collision figures following their additional mitigation and additional baseline data for EIA scale for kittiwake, the uncertainty regarding the figures to include for this project remains. Therefore, totals should also be presented for cumulative kittiwake collisions for all projects and all projects excluding Hornsea 3, Hornsea 4 and Norfolk Vanguard (as Natural England have presented in our advice in Appendix A19 of our Deadline 8 response [REP8-035].

1.4 Herring gull: We note that no updates have been provided for herring gull cumulative collisions, which is due to the low collisions (less than 1 bird for East Anglia Two and 0 for East Anglia One North) predicted for this species from both East Anglia One North and East Anglia Two. However, as noted in our advice in Appendix A19 of our Deadline 8 response [REP8-035] the cumulative herring gull collision total is now approaching 1% of baseline mortality of the largest BDMPS, indicating the need for all future offshore wind farm projects in the North Sea to undertake herring gull CRM.

1.5 Significance of impacts: The Applicants consider in paragraph 14 that the updates made in REP8-035 do not alter their conclusions of negligible to minor adverse significance for the EIA and no Adverse Effects on Integrity for the HRA within the assessments submitted in AP-060 and APP-043. Natural England does not agree with these conclusions for several species (gannet, kittiwake and gannet cumulative EIA scale) or site combinations (including Flamborough and Filey Coast SPA kittiwakes and Alde-Ore Estuary SPA lesser black-backed gull). A summary of our advice/conclusions is set out in Table 1 below and further details behind this advice is set out in the following species-specific sections.

Table 1 Summary of conclusions for operational collision assessments of the East Anglia One North and East Anglia Two projects for cumulative and in-combination with other plans and projects for relevant species for EIA and HRA based on the Applicants' updated assessments in REP8-035

EIA species	**East Anglia One North and East Anglia Two cumulatively with other plans & projects**
Gannet: collision	Unable to rule out significant adverse impact excl. & incl. Hornsea 3, Hornsea 4 & Norfolk Vanguard
Kittiwake: collision	Unable to rule out significant adverse impact excl. & incl. Hornsea 3, Hornsea 4 & Norfolk Vanguard
Lesser black-backed gull: collision	No significant adverse impact excl. Hornsea 3, Hornsea 4 & Norfolk Vanguard Unable to rule out significant adverse impact incl. Hornsea 3, Hornsea 4 & Norfolk Vanguard
Great black-backed gull: collision	Unable to rule out significant adverse impact excl. & incl. Hornsea 3, Hornsea 4 & Norfolk Vanguard
HRA species/site	**East Anglia One North and East Anglia Two in-combination with other plans & projects**
Flamborough & Filey Coast SPA: gannet	No AEoI excl. Hornsea 3, Hornsea 4 & Norfolk Vanguard Unable to rule out AEoI incl. Hornsea 3, Hornsea 4 & Norfolk Vanguard
Flamborough & Filey Coast SPA: kittiwake	AEoI irrespective of whether Hornsea 4 and Norfolk Vanguard included or not (Hornsea 3 considered compensated for)
Alde-Ore Estuary SPA: lesser black-backed gull	Unable to rule out AEoI incl./excl. Norfolk Vanguard (no collisions apportioned from Hornsea 3 & Hornsea 4)

2) Gannet cumulative and in-combination collisions

2.1 **Cumulative collisions:**

We suggest that the cumulative (EIA) annual gannet collisions presented in Table A0.1 of Appendix 1 of REP8-035 are checked by the Applicant, largely due to the fact that the sum of the seasonal EIA predictions included for EA2 does not appear correct: 10.7 + 24.2 + 47.7 does not equal 39.6 as currently presented. However, based on the figures presented by the Applicant in Table 2 of REP1-047 of revised CRM figures for EA2, we have taken the annual gannet collision prediction for the East Anglia Two project for a draught height of 24m above Mean High Water Springs (MHWS) to be 39.6. Using this figure in the cumulative total, the annual cumulative gannet collision totals are 2,889 for all confirmed projects (i.e. excluding Hornsea 3, Hornsea 4 and Norfolk Vanguard) and 3,031 for all projects including Hornsea 3, Hornsea 4 and Norfolk Vanguard. These match the totals presented by the Applicant in Table A0.1 of Appendix 1 of REP8-035 and also match those presented by Natural England in our advice in Appendix A19 of our Deadline 8 response

[REP8-159]. Therefore, our advice regarding gannet cumulative collisions remains as that set out in Appendix A19 of our Deadline 8 response [REP8-159], namely:

We are unable to rule out a significant adverse impact on gannet from cumulative collision mortality at an EIA scale irrespective of whether the Hornsea 3, Hornsea 4 and Norfolk Vanguard projects are included in the cumulative totals or not.

2.2 **In-combination collisions:** The in-combination FFC SPA gannet collision total presented by the Applicants in Table A0.1 of Appendix 1 of REP8-035 for all confirmed projects (i.e. excluding Hornsea 3, Hornsea 4 and Norfolk Vanguard) of 277 is lower than the total for all projects excluding Hornsea 3 and Hornsea 4 presented by Norfolk Boreas, this is because the Norfolk Vanguard figures were included by Boreas, and this project has had its consent revoked since the end of the Boreas examination.

The in-combination FFC SPA gannet collision total for all projects including Hornsea 3, Hornsea 4 and Norfolk Vanguard of 358 presented by the Applicants in Table A0.1 of Appendix 1 of REP8-035 has decreased slightly (by 1 for the total including all projects) from that presented by Vattenfall at Deadline 8 of the examination of that project (Norfolk Boreas Ltd 2020). This decline is due to the EA1N/EA2 Applicants' updated assessment revising the figures included for their projects to account for the updated CRM following the increase in draught height (the Boreas assessment included figures from the submission documents for EA1N and EA2), and also removing the contribution of Thanet Extension from the total following the decision not to grant consent for this project (the Boreas assessment included a figure for Thanet Extension).

We have assumed that the Applicants have made use of the same PVAs as were used at Norfolk Boreas (the FFC SPA gannet PVA undertaken by Hornsea 3 presented in Hornsea Project Three 2019). Therefore, given that the in-combination totals now presented for all confirmed projects (excluding Hornsea 3, Hornsea 4 and Norfolk Vanguard) are lower than that presented by Boreas for excluding just Hornsea 3 and 4, and that the total for all projects (including Hornsea 3, Hornsea 4 and Norfolk Vanguard) is just 1 bird below the total presented by Norfolk Boreas, our advice remains as set out in our Deadline 4 (Natural England 2020a), Deadline 7 (Natural England 2020b) and Deadline 9 (Natural England 2020c) responses during the Norfolk Boreas examination:

An adverse effect on integrity (AEoI) of the gannet feature of the FFC SPA can be ruled out for in-combination collision impacts if Hornsea 3, Hornsea 4 and Norfolk Vanguard are excluded from the in-combination totals.

However, due to Natural England's significant concerns regarding the associated level of uncertainty as regards the potential impacts of the Hornsea 3 project, together with the inevitable uncertainty associated with the figures for Hornsea 4 (which are from the PEIR and are subject to change), along with the current status of the Norfolk Vanguard project, Natural England therefore is not in a position to advise that an AEoI can be ruled out for the gannet feature of the FFC SPA for in-combination collision impacts when the Hornsea 3, Hornsea 4 and Norfolk Vanguard projects are included in the in-combination totals.

3) Kittiwake cumulative and in-combination collisions

3.1 **Cumulative collisions:** As noted in our general comments section above, the cumulative kittiwake collision total for all confirmed projects presented by the Applicants in Table A0.2 of Appendix 1 of REP8-035 includes Hornsea 3 in this total. As Hornsea 3 have not provided updated EIA scale kittiwake collision figures following their additional mitigation, this total should also exclude Hornsea 3.

Based on the figures presented by the Applicants in Table A0.2 of Appendix 1 of REP8-035, the annual cumulative kittiwake collision totals are 3,835 for all confirmed projects (i.e. excluding Hornsea 3, Hornsea 4 and Norfolk Vanguard) and 4,387 for all projects including Hornsea 3, Hornsea 4 and Norfolk Vanguard. This matches the all project total (including Hornsea 3, Hornsea 4 and Norfolk Vanguard) presented by the Applicant in Table A0.2 of Appendix 1 of REP8-035 and both match those presented by Natural England in our advice in Appendix A19 of our Deadline 8 response [REP8-159]. Therefore, our advice regarding kittiwake cumulative collisions remains as that set out in our advice in Appendix A19 of our Deadline 8 response [REP8-159], namely:

We are unable to rule out a significant adverse impact on kittiwake from cumulative collision mortality at an EIA scale irrespective of whether the Hornsea 3, Hornsea 4 and Norfolk Vanguard projects are included in the cumulative totals or not.

3.2 **In-combination:** We note that if we correct the apparent error in the spring apportioning and hence annual totals for FFC SPA kittiwake collisions for East Anglia One North and East Anglia Two (as set out above), the revised in-combination totals become 339 collisions per annum for all confirmed projects, i.e. excluding Hornsea 4 and Norfolk Vanguard (compared to 337 as presented in Table A0.2 of Appendix 1 of REP8-035) and 515 for all projects including Hornsea 4 and Norfolk Vanguard (compared to 514 as presented in Table A0.2 of Appendix 1 of REP8-159).

The in-combination FFC SPA kittiwake collision total for all projects including Hornsea 3, Hornsea 4 and Norfolk Vanguard of 515 has decreased from that presented by Vattenfall at Deadline 8 of the examination of that project (Norfolk Boreas Ltd 2020). This decline is due to the EA1N/EA2 Applicants' updated assessment updating the figures included for their projects to account for the updated CRM following the increase in draught height (the Boreas assessment included figures from the submission documents for EA1N/EA2), removal of the contribution of Thanet Extension from the total following the decision not to grant consent for this project (the Boreas assessment included a figure for Thanet Extension) and removal of the contribution of Hornsea 3 (as the impact from this project is considered to be fully compensated for).

We have assumed that the Applicants have made use of the same PVAs as were used at Norfolk Boreas (the FFC SPA kittiwake PVA undertaken by Hornsea 3 presented in Hornsea Project Three 2019). The total of 339 for all confirmed projects (i.e. excluding Hornsea 4 and Norfolk Vanguard) would result in use of the same PVA counterfactuals as were used in our Deadline 4 advice at Norfolk Boreas for the in-combination total excluding Hornsea 3 and Hornsea 4 (but including Vanguard) (i.e. PVA outputs for 350 additional mortalities, as the closest PVA output to the in-combination all confirmed project total of 339). We again highlight that the in-combination total of collision mortality across consented plans/projects has already exceeded levels which are considered to be of an Adverse Effect on Integrity to kittiwake at FFC SPA, and that any additional mortality arising from these proposals would therefore be considered adverse. In addition, the issues regarding inevitable uncertainty associated with the figures for Hornsea 4 from the PEIR and are subject to change, along with the current status of the Norfolk Vanguard project remain for FFC SPA kittiwake. Therefore, our advice remains the same as that set out in in our Deadline 4 (Natural England 2020a), Deadline 7 (Natural England 2020b) and Deadline 9 (Natural England 2020c) responses during the Norfolk Boreas examination:

As the kittiwake feature of the FFC SPA has a restore conservation objective, and because there are indications that the predicted level of mortality would mean the population could decline from current levels should it currently be stable, it is not possible to rule out AEoI of the kittiwake feature of the FFC SPA for collision impacts from in-combination with other plans and projects, both including and excluding Hornsea 4 and Norfolk Vanguard (contribution from Hornsea 3 is considered to be compensated for).

4) Lesser black-backed gull (LBBG) cumulative and in-combination collisions

4.1 **Cumulative collisions:** Based on the figures presented by the Applicants in Table A0.3 of Appendix 1 of REP8-035, the annual cumulative LBBG collision totals are 509 for all confirmed projects (i.e. excluding Hornsea 3, Hornsea 4 and Norfolk Vanguard) and 540 for all projects including Hornsea 3, Hornsea 4 and Norfolk Vanguard. These match those presented by Natural England in our advice in Appendix A19 of our Deadline 8 response [REP8-159]. Therefore, our advice regarding LBBG cumulative collisions remains as that set out in our Appendix A19 of our Deadline 8 response [REP8-159], namely:

We advise a conclusion of no significant adverse impact from cumulative collision to LBBG at an EIA scale if the Hornsea 3, Hornsea 4 and Norfolk Vanguard projects are excluded from the cumulative total.

However, due to the associated level of uncertainty as regards the impact figures to include for Hornsea 3, together with the inevitable uncertainty associated with the figures for Hornsea 4 from the PEIR and are subject to change, and the current status of Norfolk Vanguard, Natural England therefore is not in a position to advise that significant impact can be ruled out for LBBG for cumulative collision impacts when the Hornsea 3, Hornsea 4 and Norfolk Vanguard projects are included in the cumulative totals.

4.2 **In-combination collisions:** The in-combination Alde-Ore Estuary SPA LBBG collision total for all projects including Hornsea 3, Hornsea 4 and Norfolk Vanguard presented by the Applicant in Table A0.3 of Appendix 1 of REP8-035 of 53 has decreased slightly

(by 1 bird) from that presented by Vattenfall at Deadline 8 of the examination of that project (Norfolk Boreas Ltd 2020). This decline is due to the EA1N /EA2 Applicants' updated assessment updating the figures included for their projects to account for the updated CRM following the increase in draught height (the Boreas assessment included figures from the submission documents for EA1N and EA2), and removal of the contribution of Thanet Extension from the total following the decision not to grant consent for this project (the Boreas assessment included a figure for Thanet Extension). The in-combination total of 50 for all confirmed projects (i.e. excluding Hornsea 3, Hornsea 4 and Norfolk Vanguard, but no birds are apportioned to the Alde-Ore from Hornsea 3 and Hornsea 4) is slightly lower again due to the removal of the contribution from Norfolk Vanguard.

We have assumed that the Applicants have made use of the same PVAs as were used at Norfolk Boreas (the Alde-Ore SPA LBBG updated PVA undertaken by Norfolk Vanguard presented in MacArthur Green 2019). Based on the revised in-combination totals of 50 (essentially excluding Norfolk Vanguard only as no birds are apportioned from Hornsea 3 and 4) and 53 including Norfolk Vanguard, using the density independent PVA model outputs in MacArthur Green (2019), if the additional mortality from the windfarm is 50-55 adults per annum (closest PVA outputs available in MacArthur Green (2019) to predicted 50 mortalities for the in-combination total excluding Norfolk Vanguard and to the 53 in-combination total including Norfolk Vanguard) then the population of the Alde-Ore Estuary SPA after 30 years will be 30.6-33.1% lower than it would have been in the absence of the additional mortality. The population growth rate would be reduced by 1.3-1.4% (based on the counterfactuals of population size and growth rate presented in Tables 2 and 3 of MacArthur Green 2019). If it is assumed that the population is stable then this would mean that the population would be 30.6-33.1% lower than the current population size. This would be counter to the restore conservation objective for this feature of the site.

Based on the above, and the assessment of the status of the Alde-Ore Estuary SPA LBBG population, plausible future growth rates of the colony etc. detailed in our Deadline 4 (Natural England 2020a) and Deadline 7 (Natural England 2020b) responses during the Norfolk Boreas examination, our advice remains as set out in our Deadline 4 (Natural England 2020a) and Deadline 7 (Natural England 2020b) responses during the Norfolk Boreas examination:

As this feature has a restore conservation objective, and because there are indications that the population might even decline from current levels, Natural England advises that it is not possible to rule out an adverse effect on integrity (AEoI) of the LBBG feature of the Alde-Ore Estuary SPA for from in-combination collision impacts with other plans and projects, both including and excluding Norfolk Vanguard (no collisions apportioned from Hornsea 3 or Hornsea 4).

5) Great black-backed gull (GBBG) cumulative and in-combination collisions

5.1 **Cumulative collisions:** The cumulative total for all confirmed projects (i.e. excluding Hornsea 3, Hornsea 4 and Norfolk Vanguard) of 917 in Table A0.4 of Appendix 1 of REP8-035 is slightly higher (3 birds more) than the figure presented by Natural England in our advice in Appendix A19 of our Deadline 8 response [REP8-159].

We note that there is a minor error in the annual collision total presented for Hornsea 4 in Table A0.4 of Appendix 1 of REP8-035: 3 collisions in the breeding season + 13.6 in the non-breeding season = 16.6 (not 13.6 as presented). This makes a very minor increase of 3 birds to the all projects (including Hornsea 3, Hornsea 4 and Norfolk Vanguard) cumulative collision totals to 1,026 collisions (rather than 1,023 as presented by the Applicants).

These minor differences in the totals highlighted above, do not alter our advice regarding GBBG cumulative collisions set out in our advice in Appendix A19 of our Deadline 8 response [REP8-159], namely:

We are unable to rule out a significant adverse impact on GBBG from cumulative collision mortality at an EIA scale irrespective of whether the Hornsea 3, Hornsea 4 and Norfolk Vanguard projects are included in the cumulative totals or not.

References

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MacArthur Green (2019) Norfolk Vanguard Offshore Wind Farm Responses to Natural England initial comments on the Alde-Ore Estuary SPA lesser black-backed gull PVA Offshore Ornithology Cumulative and In-combination Collision Risk Assessment: Appendix 1. Available from: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010079/EN010079-002883-ExA%3B%20AS%3B%2010.D7.21A_Alde%20Ore%20Estuary%20SPA%20PVA%20Responses.pdf

Natural England (2020a) Norfolk Boreas Offshore Wind Farm Deadline 4 Updated Ornithology Advice: Natural England's comments in relation to the Norfolk Boreas updated offshore ornithological assessment, submitted at Deadline 2 [REP2-035]. Available from: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010087/EN010087-001629-DL4%20-%20Natural%20England%20-%20Updated%20Ornithology%20Advice.pdf

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