

# Norfolk Boreas Offshore Wind Farm Position Statement on Derogation

Applicant: Norfolk Boreas Limited  
Document Reference: ExA.AS-3.D6.V1  
Deadline 6

Date: March 2020  
Revision: Version 1  
Author: Royal HaskoningDHV

*Photo: Ormonde Offshore Wind Farm*

Date	Issue No.	Remarks / Reason for Issue	Author	Checked	Approved
02/03/2020	01D	Final version for submission at Deadline 6	BT/DT/JT	EV/VR/JH	JL



## Executive Summary

The Applicant maintains the position that a conclusion can be reached during the consenting stage that the Norfolk Boreas project would have no Adverse Effect on Integrity (AEoI) on any Natura 2000 sites. There is therefore no requirement for the submission of any form of derogation case under Article 6(4) of the Habitats Directive.

The Applicant has been requested by the Examining Authority (ExA) in further written questions [PD-009] to provide consideration of alternatives and whether these would have avoided adverse effect on integrity, and to provide information on what compensatory measures would be considered should it not be possible to rule out AEoI. These questions have been asked in relation to the following sites

- The Haisborough Hammond and Winterton Special Area of Conservation (SAC);
- The Alde-Ore Estuary Special Protection Area (SPA), and
- The Flamborough and Filey Coast SPA and Greater Wash SPA.

The Applicant has been working with various stakeholders to reduce any possible effects of the project on Natura 2000 sites and as a result has committed to many additional mitigation measures and measures to reduce the project envelope. With these reductions and additional commitments there can be further confidence in the conclusion that the project will not result in an AEoI on the above sites.

Notwithstanding this, and in accordance with the ExA's further written questions, the Applicant has provided further information on what may be considered as possible alternatives and various methods which might be considered for providing compensation. These are provided as follows:

- Appendix 1: Considerations for Assessment of Alternatives; and
- Appendix 2: Considerations for Compensation.

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## Glossary of Acronyms

AEoI	Adverse Effect on Integrity
AOE	Alde-Ore Estuary
BEIS	Business, Energy and Industrial Strategy
CCUS	Carbon Capture, Use and Storage
DCO	Development Consent Order
ExA	Examining Authority
FFC	Flamborough and Filey Coast
GW	Gigawatt
HHW	Haisborough, Hammond and Winterton
HRA	Habitats Regulations Assessment
LBBG	Lesser Black-Backed Gull
MHWS	Mean High Water Springs
MMO	Marine Management Organisation
MW	Magawatt
NE	Natural England
NV	Norfolk Vanguard
SAC	Special Area of Conservation
SoS	Secretary of State (SoS)
SPA	Special Protection Area

## 1 Introduction

1. The Applicant has been requested by the Examining Authority (ExA) in further written questions [PD-009] to provide consideration of alternatives and compensatory measures; two of the three elements which are required for a HRA derogation case under Article 6 (4) of the Habitats Directive.
2. These questions have been asked in relation to the following sites:
  - The Haisborough, Hammond and Winterton Special Area of Conservation (SAC);
  - The Alde-Ore Estuary Special Protection Area (SPA), and
  - The Flamborough and Filey Coast SPA and Greater Wash SPA
3. In addition to this request the Applicant for Norfolk Vanguard (NV), the sister project to Norfolk Boreas, was requested to provide similar information, in the alternative to providing further details of additional mitigation measures, by the Secretary of State (SoS) of the Department for Business, Energy and Industrial Strategy (BEIS) in a letter dated 6 December 2019. The NV applicant's response to this letter was submitted to the SoS by the NV applicant on the 28 February 2020.
4. The NV applicant understands that the request for information by the SoS to Norfolk Vanguard is without prejudice to the SoS's final decision on the DCO application, and is not to be taken to imply any conclusion that may be reached.
5. The Applicant believes that the HRA derogation provisions need not be relied on by the SoS to authorise Norfolk Boreas because it can be concluded with the required degree of certainty on the basis of the information provided in the Norfolk Boreas DCO application, and in the course of the Examination, that Norfolk Boreas would not give rise to any AEoI alone or in-combination with other projects or plans.
6. The Applicant remains confident of its position of no AEoI on the basis of the maximum design envelope and mitigation measures put forward as part of the application and during the Examination.

### 1.1 Approach

7. Notwithstanding the above, and in compliance with the ExA's further written questions the Applicant has provided further information on alternatives and compensation in the Appendices to this document.
8. When tested against the core Project objectives, Norfolk Boreas clearly demonstrates that there are no feasible alternatives to the proposed Norfolk Boreas project based on the adjusted design envelope. The alternatives identified and their feasibility have been summarised in Appendix 1 of this document.

9. One of the key Project objectives of Norfolk Boreas, responding directly to the fundamental and urgent need for the UK to decarbonise its power sector, is to deliver a significant volume of low carbon generation in the 2020s. Offshore wind is already highly competitive against other forms of conventional and low carbon generation, both in the UK and more widely, and has demonstrated that it can be delivered on time and on scale. Norfolk Boreas, together with Norfolk Vanguard, could generate in the order of 3.6GW of offshore wind power.
10. If the UK is to meet its aim to reach 40GW of offshore wind by 2030, and the 2050 net zero commitment, it is not a case of choosing between Norfolk Boreas and one or more alternative offshore wind farms (any of which would be subject to HRA) but rather Norfolk Boreas and other wind farms.
11. Given that time is of the essence in tackling the level of greenhouse gas emissions it is also relevant that other low carbon technologies (e.g. tidal, nuclear or conventional fossil fuels with Carbon Capture, Use and Storage (CCUS)) remain potential contributors to achieving the 2050 net zero obligation, but not in the 2020s.

#### 1.1.1 Norfolk Boreas

12. Norfolk Boreas and its sister project, Norfolk Vanguard (decision expected on 1 June 2020) (which would provide enabling development for Norfolk Boreas) will deliver a substantial volume of low carbon generation in the 2020s. Offshore wind is now one of the lowest cost forms of energy and one that can be deployed at scale within relatively short timeframes.
13. Norfolk Vanguard and Norfolk Boreas have a combined potential capacity of 3.6GW and could, together, comprise the world's largest wind farm, providing affordable green electricity for nearly 4 million UK households, offsetting approximately 4 million tonnes of carbon dioxide over their lifetime.

## 2 Maximum Design Scenario Reductions

14. Since the application was submitted, and over the course of the Examination thus far, the Applicant has made further significant reductions to the design envelope and put forward further mitigation for Norfolk Boreas where feasible, including:
  - Decrease in the maximum number of turbines from 180 to 158
  - Increase in the minimum draught height of turbines with a capacity up to and including 14.6MW from 22m to 35m from Mean High Water Springs (MHWS) and of turbines with a capacity of 14.7MW and above from 22m to 30m from MHWS;



- A commitment to use no cable protection in the priority areas to be managed as reef within the HHW SAC unless otherwise agreed with the MMO in consultation with NE;
  - Commitment to a number of disposal principles to promote recovery of Annex I sandbank features;
  - A new commitment to decommission cable protection at the end of the Norfolk Boreas project life where it is associated with unburied cables due to ground conditions (where required for crossings this will be left *in situ*).
  - Progressing agreements for the removal of disused cables in order to minimise the number of crossing locations that would require cable protection.
15. The Applicant believes these additional commitments and envelope refinements add further comfort to its firm position that a conclusion of no AEoI for all European sites can confidently be reached.

### 3 Examining Authority's Request for Further Information

16. In the Examining Authority's (ExA) Further written questions and requests for further information [PD-009] issued on 12 February 2020 the ExA requested information on (among other matters):
- Q2.8.3.7 Consideration of alternatives (for the HHW SAC): "What alternative solutions were considered by the Applicant and would any of these have avoided adverse effects on the integrity of the sites?";
  - Q2.8.3.8 Compensatory Measures (for the HHW SAC): Following on from Q2.8.4.5 what compensatory measures could be proposed to ensure that the overall coherence of the network of Natura 2000 sites is protected?
  - Q2.8.6.1 Consideration of Alternatives (Alde-Ore Estuary SPA, Flamborough and Filey Coast SPA and Greater Wash SPA): Notwithstanding the Applicant's exploration of further mitigation for in-combination effects as described at the ISH on 22 January [REP4-014], in the event that no AEoI cannot be concluded what feasible alternative solutions to avoid or lessen any adverse effects on the integrity of these sites could be considered?
  - Q2.8.6.2 Compensatory Measures (Alde-Ore Estuary SPA, Flamborough and Filey Coast SPA and Greater Wash SPA): Following on from Q2.8.7.1 what compensatory measures could be proposed to ensure that the overall coherence of the network of Natura 2000 sites is protected?
17. With respect to the Greater Wash SPA, Natural England has agreed with the Applicant that, following the commitment to mitigation measures made by the Applicant, AEoI can be ruled out for red-throated diver and common scoter due to Norfolk Boreas alone and in-combination due to construction activities and operations and maintenance vessels (REP4-040).



18. Prior to the additional mitigation stated above, Natural England had also agreed with the Applicant that AEoI can be ruled out for collision risk to little gull at the project alone and in-combination (REP4-040). Furthermore, following the additional mitigation to reduce collisions, the annual little gull mortality has been reduced from 3.9 individuals (in the original application) to 1.1 (REP5-059), thus further reinforcing the absence of AEoI on this feature.
19. The Applicant's has therefore included focused on the following European sites, features and impacts only:

European sites	Relevant qualifying features	Relevant impact from Norfolk Boreas
Flamborough and Filey Coast (FFC) SPA	Breeding kittiwake feature	Collision risk
Alde-Ore Estuary (AOE) SPA	Breeding lesser black-backed gull (LBBG) feature	Collision risk
Haisborough Hammond and Winterton (HHW) SAC	Reefs and sandbanks	Installation of cables/ cable protection on the seabed

20. The requests for further information by the ExA have been addressed through Appendices 1 and 2 of this document.

#### 4 Summary of the Applicant's Ornithology Position

21. As a result of the additional mitigation stated above in section 2, using NE's preferred parameters (which the Applicant considers include a very large degree of precaution) the annual kittiwake mortality apportioned to the FFC SPA has been reduced from 49.5 individuals (in the original application) to 14, while using the Applicant's preferred parameters, the reduction is from 21.4 to 6.1 individuals (the Applicant has derived these parameters from a robust analysis of available evidence; REP5-059).
22. Similarly, using NE's preferred parameters (which the Applicant also considers include a very large degree of precaution) the annual lesser black-backed gull mortality apportioned to the AOE SPA has been reduced from 5.9 individuals (in the original application) to 2.1, while using the Applicant's preferred parameters, the reduction is from 4.3 to 1.6 individuals (the Applicant has derived these parameters from a robust analysis of available evidence; REP5-059).
23. The revised collision estimates for all species are now comparable or lower to those for consented projects, and on a per megawatt basis, Norfolk Boreas's impacts are

an order of magnitude lower than those for most North Sea wind farms consented in the last five years.

#### 4.1 Over Precaution

24. The Applicant considers that ornithology impact assessment for offshore wind farms has become highly over precautionary through the accumulation of numerous individual precautionary elements added throughout the different stages of assessment.
25. While each of these individual elements is justifiable to a degree, it is the combination of these elements which leads to the overestimation of impact magnitude and hence highly over precautionary predictions. While each element of precaution on its own does not necessarily result in an overly precautionary conclusion, the combined effect is of primary concern and in the Applicant's view NE gives very little consideration to this accumulation of precaution when reaching conclusions on assessment.
26. Another important source of over precaution in the cumulative and in-combination assessment is the collision impact estimates ascribed to other wind farms. The view that consented values must be used, as opposed to as built reductions following revisions to a wind farm design's worst case Rochdale envelope, does not reflect the reality of seabird collision risks. Natural England accepts that there is 'headroom' in this respect.
27. There is a risk that continuing to adopt this approach will unnecessarily prevent further wind farm development, delaying efforts to reduce carbon emissions to meet the climate emergency

#### 5 Summary of the Applicant's Position on the HHW SAC

28. The Applicant has already made a significant number of mitigation commitments with regard to the HHW SAC, embedded in the project design and secured in the HHW SAC control document (document reference 8.20), including reductions in cable numbers, avoidance of Annex I reef where possible, reductions in amounts of cable protection which might be required, and placing no cable protection within the priority areas to be managed as Annex I reef.
29. The Applicant is now committed to decommissioning cable protection at the end of the Norfolk Boreas project life where it is associated with unburied cables due to ground conditions (where required for crossings this will be left in situ). This commitment follows a review of the supply chain undertaken by the Applicant to confirm that this will be possible (see the Applicant's Additional information to the

HHW SAC position paper [ExA.AS-2.D6.V1]) and ensures that habitat loss will be long term over the project life rather than permanent.

30. Every effort is also being made by the Applicant to reduce the number of crossings by removing disused cables where agreement can be reached with the cable owners. An Out of Service Cable Recovery Agreement has been progressed with BT Subsea. Annex 3 of the Additional information to the HHW SAC position paper (ExA.AS-2.D6.V1) demonstrates the advanced stages of these discussions, with a formal agreement expected to be in place imminently. Once completed, the Agreement will allow the Applicant to remove a significant number of out of service assets owned by BT Subsea within the SAC and so further reduce the requirement for cable protection.
31. These measures are discussed further in Additional information to the HHW SAC position paper (Exa.AS-2.D6.V1).
32. Applying the very precautionary worst case maximum design scenario, the maximum potential impact to the sandbank of the HHW SAC (if the full volume of cable protection were to be deployed) would equate to only 0.002% of the total area of the HHW SAC and 0.003%<sup>1</sup> of the area of sandbanks. This is a very small scale impact which the Applicant considers is de minimis and/or inconsequential. Furthermore, due to micrositing it is likely that there will be no loss of Annex I Reef and in the unlikely event that micrositing is not possible in some areas due to Reef developing to a much larger extent than is currently present, the proportion of loss would be extremely small. In addition, as a result of the Applicant's commitment to use no cable protection in the priority areas to be managed as reef within the HHW SAC, there will be 0% loss of this habitat which has been identified by Natural England in order to support restoration of the Annex I Reef to favourable condition. This is discussed further in the Additional information to the HHW SAC position paper [ExA.AS-2.D6.V1] with an assessment of the effects provided in Appendix 4 of that document.
33. NE has advised in their advice note regarding consideration of small scale habitat loss within SACs in relation to cable protection (submitted at Deadline 1 [REP1-057]) that it would consider there to be no likelihood of an AEoI where any one (or more) of the following can be demonstrated:
  - That the loss is not on the priority habitat/feature/sub feature/supporting habitat, and/or;
  - That the loss is temporary and reversible, and/or;
  - That the scale of loss is so small as to be de minimis and/or;

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<sup>1</sup> Note: these will be reduced once the Out of Service Cable Recovery Agreement has been formalised.

- That the scale of loss is inconsequential including other impacts on the site/feature/sub feature.
34. The Applicant considers that all of the above are met in the case of Norfolk Boreas and based on the outcome of the Information to HRA Report [APP-201] and the additional assessment it is determined there will be no AEoI of the HHW SAC in relation to the conservation objectives for *S. spinulosa* Annex I reef and Annex I Sandbank.

# Norfolk Boreas Offshore Wind Farm

# Position Statement on

# Derogation

## Appendix 1 Alternatives

Applicant: Norfolk Boreas Limited  
Document Reference: ExA.AS-3.D6.V1  
Deadline 6

Date: March 2020  
Revision: Version 1  
Author: Royal HaskoningDHV

*Photo: Ormonde Offshore Wind Farm*

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## Glossary of Acronyms

AEol	Adverse Effect on Integrity
DCO	Development Consent Order
ExA	Examining Authority
HHW	Haisborough, Hammond and Winterton
SAC	Special Area of Conservation
SPA	Special Protection Area
NE	Natural England
MMO	Marine Management Organisation
HRA	Habitats Regulations Assessment
MW	Magawatt

## 1 Introduction

1. The Applicant remains confident of its position of no AEoI on the basis of the maximum design envelope and mitigation measures put forward in the application and during the Examination. Following submissions made thus far in the Examination, and the receipt of the ExA's further written questions, the Applicant has further reviewed all elements of the Project design envelope and provides below information on how viable alternative solutions could be assessed. Additionally, further possible mitigation measures have been included to ensure that all feasible mitigation has been deployed.

### 1.1 Examining Authority's Request for further Information

2. In the Examining Authority's (ExA) Further written questions and requests for further information [PD-009] issued 12 February 2020 the ExA requested information on (among other matters):
  - Q2.8.3.7 Consideration of alternatives (for the Haisborough, Hammond and Winterton SAC): "What alternative solutions were considered by the Applicant and would any of these have avoided adverse effects on the integrity of the sites?";
  - Q2.8.6.1 Consideration of Alternatives (Alde-Ore Estuary SPA, Flamborough and Filey Coast SPA and Greater Wash SPA): Notwithstanding the Applicant's exploration of further mitigation for in-combination effects as described at the ISH on 22 January [REP4-014], in the event that no AEoI cannot be concluded what feasible alternative solutions to avoid or lessen any adverse effects on the integrity of these sites could be considered?
3. In response to these questions the Applicant has provided within section 4 a list of Alternative solutions which could be considered further. Sections 3, 5 and 6 provide the Applicant's proposed methodology for how these alternative solutions would be assessed, should that be required.

## 2 Alternative conditions

4. As stated in the Derogation Position statement submitted at Deadline 6 (document reference ExA.AS-3.D6.V1), the Applicant is confident that a conclusion of no AEoI can be made pre-consent based on the evidence already submitted during the Examination.
5. As a result, the Applicant is proposing an alternative approach to securing the mitigation for cable installation and cable protection in the HHW SAC. This could instead be conditioned through a Cable Specification, Installation and Monitoring

Plan (CSIMP) for the HHW SAC, to be submitted to the MMO (in consultation with NE) in advance of commencement of licensed activities.

6. The Applicant is therefore providing optionality to the Examining Authority and the Secretary of State on this matter, with either:
  - the existing Grampian condition and HHW SAC Site Integrity Plan; or
  - the alternative condition and HHW SAC CSIMP
7. Further information on this is provided in the Additional information to the HHW SAC position paper submitted at Deadline 6 (ExA.AS-2.D6.V1)

### 3 Assessment of Alternative Solutions

8. Norfolk Boreas is a Round 3 OWF, located in the former East Anglia Zone (Zone 5). The former East Anglia Zone was originally identified by The Crown Estate (TCE) as a suitable area offering 'potential for offshore wind' as part of the Round 3 Offshore Wind Zone development process in 2008. The Round 3 selection process involved an approach based on development zones, which ultimately included the former East Anglia Zone.
9. TCE led the Round 3 process to identify suitable zones using MaRS (its Marine Resource System GIS tool). Initial areas of opportunity identified were:
  - excluded if there were conflicting uses in place or planned;
  - weighted for restriction if there were constraints such as nature conservation; and
  - reviewed for local factors which included "sensitive bird areas".
10. Eleven initial zones were subject to consultation. In the course of this exercise the 11 zones were then adapted to nine zones. Finally, slight boundary adjustments were made to the nine "Round 3" zones. The former East Anglia Zone was, therefore, progressed following consultation with stakeholders, initiated by TCE, before a tender round was issued to potential developers.
11. In December 2009 East Anglia Offshore Wind (EAOW, a consortium of Vattenfall Wind Power Ltd (VWPL) and Scottish Power Renewables (SPR)) was awarded the rights to develop Zone 5 (the former East Anglia Zone) with a Zone Development Agreement (ZDA).
12. As noted in National Policy Statement (NPS) for Renewable Energy Infrastructure (EN-3), the award of ZDAs amounted to a plan within the meaning of the Offshore Habitats Regulations and, therefore, an Appropriate Assessment was carried out by TCE, as competent authority, before the ZDAs were awarded.

13. In parallel, DECC undertook a Strategic Environmental Assessment (SEA) in accordance with the Environmental Assessment of Plans and Programmes Regulations 2004 (the SEA Regulations). As set out in NPS EN-3, through this Offshore Energy SEA (OESEA) (DECC, 2009), the UK Government assessed "*the environmental implications and spatial interactions of a plan/programme for some 25GW new offshore wind, on top of existing plans for 8GW of offshore wind*". The OESEA included consideration of alternatives to the draft plan/programme for all elements covered by the SEA, including future offshore wind leasing. The UK Government concluded there were no overriding environmental considerations to prevent the achievement of the plan/programme.
14. The identification of OWF locations within the former East Anglia Zone was undertaken through a robust Zonal Appraisal and Planning (ZAP) process conducted by EAOW, which commenced in 2010 utilising available environmental and technical data. This resulted in a Zonal Development Plan (ZDP) in 2012, which identified areas with the least environmental and technical constraints. Following the commercial split of the former East Anglia Zone, VWPL took control of all development activities for projects in the northern half of the zone and SPR for development activities in the southern half of the zone.
15. During 2015, VWPL revisited the ZDP for the northern half of the zone and the locations of Norfolk Boreas (and its sister project, Norfolk Vanguard) were identified; taking account of key environmental and stakeholder constraints, technical aspects and the lowest cost of energy, as described in paragraphs 28-32 of Chapter 4 of the Environmental Statement (ES).
16. The southern North Sea provides an optimum location for OWFs due to the availability of suitable wind resource, water depths and ground conditions.
17. The DEFRA Guidance establishes that the consideration of alternative solutions to OWFs need not go beyond the consideration of options for OWFs, in order to deliver the objectives of renewable energy production:

*“Alternative solutions are limited to those which would deliver the same overall objective as the original proposal. For example, in considering alternative solutions to an offshore wind renewable energy development the competent authority need only consider alternative offshore wind renewable energy developments. Alternative forms of energy generation are not alternative solutions to this project as they are beyond the scope of its objective. Similarly, alternative solutions to a port development will be limited to other ways of delivering port capacity, and not other options for importing freight. Likewise, the assessment of alternative solutions for a proposed motorway would not need to include the assessment of alternative modes of transport. This approach was*

*followed in the Nuclear Energy National Policy Statement where the consideration of alternative solutions was limited to alternative sites for nuclear development.*

*National Policy Statements and other documents setting out Government policy (e.g. the UK Renewable Energy Roadmap) provide a context for competent authorities considering the scope of alternative solutions they will assess.”*

18. In accordance with this guidance, only OWFs (and not other forms of energy provision) should be considered in the Norfolk Boreas assessment of alternative solutions.
19. The methodology that would be adopted to assess alternative solutions would be developed based on guidance from a range of sources, including:
  - DEFRA (2012). Habitats and Wild Birds Directives: guidance on the application of Article 6(4) Alternative solutions, IROPI and compensatory measures.
  - EC (2001). Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.
  - EC (2011). Guidelines on the Implementation of the Birds and Habitats Directives in Estuaries and Coastal Zones; with particular attention to port development and dredging.
  - EC (2012). Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC. Clarification of the concepts of: Alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the Commission.
  - EC (2018). Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.
  - The Planning Inspectorate (2012). Advice Note Ten: Habitat Regulations Assessment relevant to Nationally Significant Infrastructure Projects.
20. In accordance with the EC (2001) Guidance, the methodology adopted should take the following steps:
  - Step 1 – summarise the need for the Project and Project objectives.
  - Step 2 – identify the risk of harm to the integrity of the relevant Natura 2000 sites.
  - Step 3 – produce a long list of potential alternative solutions to address the potential harm and screen these in terms of whether they meet the need for and objectives of the Project - to produce a short list of alternative solutions (that meet the Project need and objectives).
  - Step 4 – consider whether any short-listed potential alternative solutions are 'feasible' (legally, technically and financially).

- Step 5 – consider whether any feasible alternative solutions would have a lesser effect on the integrity of the Natura 2000 network.

21. Further details on these five steps are provided below.

**Table 3.1 Assessment of Alternative Solutions Methodology**

Step	Methodology
Step 1 – summarise the need for the Project and the Project objectives	<p>European Union and Defra guidance explains that it is important to define the Project’s need and objectives in order to determine what constitute relevant alternatives (this enables a short list of relevant potential alternative solutions to be identified at step 3).</p> <p>The ‘need’ for the Project will be derived from Task 3 (IROPI) (i.e. a summary of part of the IROPI case). The core objectives for the Project will reflect the content of the Planning Statement.</p>
Step 2 - identify the risk of harm to the integrity of the relevant designated sites	<p>Step 2 comprises the following:</p> <ul style="list-style-type: none"> <li>• Description of the envisaged potential for harm. That is, those activities where the project may cause an AEoI of the SPA or SAC (or an adverse effect on integrity cannot be ruled out, beyond reasonable scientific doubt).</li> <li>• Defining the particular aspects of the Project works that relate to the envisaged potential for harm (why the works are needed, how the works would be constructed, when the works would occur and where the works would be located).</li> <li>• Presenting the proposed mitigation for the potential harm.</li> <li>• Identifying the residual potential for harm which requires assessment to determine if there are alternative solutions available.</li> </ul> <p>In part, the reporting for Step 2 will draw from the findings of the Shadow HRA, but also requires investigation into the detail of the construction work and the assessment studies undertaken for the Environmental Impact Assessment (EIA).</p>
Step 3 – production of a long list of potential alternative solutions and screen to produce a short list	<p>Step 3 comprises of:</p> <ul style="list-style-type: none"> <li>• Identifying a long list of potential alternative solutions for the potential residual harm.</li> <li>• Screening the long list of potential alternative solutions against the Project need and objectives to produce a short list.</li> </ul> <p>To develop a long list of potential alternative solutions, the following categories of potential alternative solutions will be considered (with a series of alternative solutions for each category):</p> <ol style="list-style-type: none"> <li>a) Do nothing.</li> <li>b) Alternative locations.</li> <li>c) Alternative scale or design.</li> </ol> <p>For each of the alternative solutions, a high-level judgement on the effect of the alternative solution on residual harm to the Natura 2000 site will be made (e.g. removes the effect, changes the characteristics of the effect, etc.).</p> <p>The long list will then be screened to assess whether the potential alternative solutions could meet or deliver the need for, and objectives of, the Project (as defined in Step 1). The output of this is a short list of potential alternative solutions.</p>

Step	Methodology
Step 4 – consider whether any short-listed potential alternative solutions are ‘feasible’	This step will assess the feasibility of each of the short listed potential alternative solutions. Only alternative solutions that meet or deliver the Project need and objectives are considered in Step 4. Each short-listed potential alternative solution will be assessed to determine whether it is legally, technically and financially feasible (in line with Defra guidance).
Step 5 – consider whether any feasible alternative solutions would have a lesser effect on the integrity of the Natura 2000 network.	Step 5 will assess the effects of any feasible alternative on the integrity of the Natura 2000 site (i.e. whether the alternative would have a lesser effect on the site).

22. Only alternatives that have the potential to meet or deliver the Project Need and Objectives need be considered in the assessment of alternative solutions. That is, the alternative would have to deliver against: *“the urgent need for offshore wind energy generation in order to help meet the requirement for 59GW of new electricity capacity by 2025 and the aspiration to achieve 33GW from renewable sources”*.

### 3.1 Project Objectives

23. The Norfolk Boreas project objectives are shown in Table 3.2.

**Table 3.2 Norfolk Boreas Project Objectives**

Ref	Objective	Basis for the objective
1	Contribute effectively to enhancing the security of the UK’s energy supply, by providing “home-grown”, renewable energy	NPS EN–1, issued by the Secretary of State for Energy and Climate Change in 2011, sets out the Government’s policy for the delivery of major energy infrastructure. Part 2 of NPS EN–1 notes that <i>“it is critical that the UK continues to have secure and reliable supplies of electricity as we make the transition to a low carbon economy”</i> and acknowledges the need for a diverse mix of technologies to ensure security of supply. Part 3 of NPS EN–1 describes the vital role of energy to economic prosperity and social well-being and the importance of ensuring the UK has secure and affordable energy. It discusses the scale and urgency of the need for nationally significant energy projects. In section 3.4.3, the Government sets out the expectation that offshore wind will provide the largest single contribution towards the 2020 renewable energy generation targets. Norfolk Boreas aims to contribute 1.8GW of export capacity, which represents the electricity needs of approximately 1.95M UK homes or 2% of total UK electricity needs. <sup>1</sup>
2	Provide low cost energy to the UK consumer	The commitment by the UK Government to support offshore wind through the Sector Deal is based on the principles of competitive allocation of support, continued cost reductions

<sup>1</sup> Based on a load factor of 47.3% which is advocated by BEIS for new offshore wind farm projects (BEIS, 2018) and RenewableUK [www.renewableuk.com/page/UKWEExplained](http://www.renewableuk.com/page/UKWEExplained)



Ref	Objective	Basis for the objective
		<p>and value for consumers. The Sector Deal states “Over the period to 2030, the sector will continue to focus on reducing both the levelised cost of offshore wind and system costs, as low-carbon technologies move towards a subsidy free world.”</p> <p>This requirement to reduce energy cost is driven by the competitive Contracts for Difference (CfD) scheme.</p> <p>The continuing innovation driving the offshore wind sector towards greater cost efficiencies and improved conversion of wind power to the electricity network has resulted in the cost of offshore wind coming down relative to all other scale-able sources. The last CfD round (2019) saw offshore wind projects coming in at £49.50 / MW (c.f. £150 /MW in 2011) and considerably lower than other energy sources. The rate of deliverability of offshore wind projects is also favourable compared to other low carbon means of electricity generation, making offshore wind one of the most cost-effective and deployable sources of energy to address the urgent need for new energy projects, set out in EN-1.</p> <p>The Norfolk Boreas site was originally selected to provide low cost energy to the consumer, owing to its ground conditions and high wind resource. Of the new generation of OWFs (Round 3), the site is also relatively close to shore. Additionally, the Project is being developed in a coordinated way with Norfolk Vanguard which, as well as minimising environmental impacts, would allow 3.6GW of installed capacity to be delivered with economic efficiencies.</p>
3	Contribute to the UK’s drive to meeting Carbon reduction commitments	<p>The UK Government has committed to reducing its greenhouse gas emissions by at least 100% of 1990 levels (net zero) by 2050. This commitment is made through the Climate Change Act 2008 (2050 Target Amendment) Order 2019 which was brought into force in June 2019 in response to recommendations by the CCC (CCC, 2019). To meet this target electricity generation based on offshore wind is needed, as reflected in the Sector Deal (see below).</p> <p>It is estimated that Norfolk Boreas alone would prevent more than 2 million tonnes of carbon dioxide entering the atmosphere. By developing both Norfolk Boreas and Norfolk Vanguard together, the time normally required to install the equivalent capacity would be reduced, thereby initiating these extensive carbon savings much sooner than if the projects were being developed separately.</p>
4	Contribute to the Offshore Wind Sector Deal and Conservative Government’s targets to reach 30GW and 40GW respectively of installed offshore wind capacity by 2030	<p>Since the NPSs were published in 2011, new legislation has committed the UK to achieving Net Zero emissions by 2050. Furthermore, in March 2019, the UK Government and the Offshore Wind Sector published the Offshore Wind Sector Deal, with an agreed target to increase offshore wind capacity to 30GW by 2030.</p> <p>The Conservative party 2019 manifesto set an even more ambitious target for offshore wind deployment in the UK, namely 40GW by 2030.</p> <p>Norfolk Boreas and Norfolk Vanguard would provide more than a third of the additional capacity required to meet Sector Deal targets.</p>

Ref	Objective	Basis for the objective
5	Contribute to the UK's industrial strategy and global leadership in the development of offshore wind projects, resulting in socio-economic benefits to the UK as a whole, as well as East Anglia and Norfolk specifically	The need to maximise social and economic opportunities for the UK from energy infrastructure investment, is noted in the Clean Growth Strategy (BEIS, 2017). The UK Offshore Wind Sector Deal (BEIS, 2019) aims to create 27,000 skilled jobs across the UK (up from 11,000), mainly in coastal areas, by 2030. The Centre for Economics and Business Research (CEBR, 2012) estimates that by 2030, offshore wind could increase the Gross Domestic Product (GDP) value by 0.6% and support 173,000 jobs. The Industrial Strategy: Offshore Wind Sector Deal was agreed and published in 2019 and commits the UK to almost quadruple offshore wind capacity from 7.9 gigawatts, to at least 30GW by 2030, generating one-third of the UK's electricity. The Sector Deal sets the strategy to generate thousands of high-quality jobs, create opportunities and a strong UK supply chain. Vattenfall continues to work proactively with national, regional and local stakeholders to optimise socio-economic opportunities in line with the five pillars of the Government's Industrial Strategy and Clean Growth Challenge. Vattenfall's approach to business development will contribute to the maintenance of the UK's global leadership in offshore wind.
6	Help to create a positive legacy for Norfolk and East Anglia, facilitating socio-economic enhancement, including encouraging businesses and residents to consider the opportunities associated with the multi-billion pound investments required to build Norfolk Boreas	Offshore clean energy is supported by the New Anglia Local Enterprise Partnership for Norfolk and Suffolk (New Anglia LEP, 2015) due to the economic benefits the sector brings to Norfolk and Suffolk. The aim of the New Anglia LEP is to lead economic growth and job creation in these areas by 2026. In delivery of the Project, Vattenfall would build on local strengths and contribute effectively to addressing local skills needs, through collaboration with local stakeholders and further developing Vattenfall's own skills and employment initiatives to encourage greater participation in the sector of local residents and workers.

## 4 List of Alternative Solutions

24. This section discusses a list of possible alternatives that would be considered for the Norfolk Boreas project assessment of alternatives.

### 4.1 Do Nothing

25. While the DEFRA Guidance (paragraph 17) advises that the "do nothing" option should be considered, it acknowledges this would rarely be a true alternative:

*"Normally this would not be an acceptable alternative solution because it would not deliver the objective of the proposal. However it can help form a baseline from which to gauge other alternatives. It can also help in understanding the need for the proposal to proceed, which will be relevant to any later consideration of the IROPI test..."*

26. On the basis that UK renewable energy targets are unconstrained, logically, renewable energy projects cannot be ruled out (in principle) on the basis that an alternative could be progressed. That is, all available solutions / all relevant projects are required. Recent announcements by TCE regarding further offshore wind licensing rounds (project extensions and "Round 4"), as well as updates to policy and legislation requirements, are further evidence that more offshore wind is considered necessary to meet UK renewable energy targets. Furthermore, the public good that Norfolk Boreas (as a substantial offshore wind project) would serve encompasses considerations relating to human health and public safety, and the Project provides beneficial consequences of primary importance to the environment. Given the weight of this argument, doing nothing is not a realistic option.

#### 4.2 Alternative OWF Locations

27. Alternative locations for the OWF would need to be considered.
28. TCE holds the exclusive right to grant licences for offshore wind farms under the Energy Act 2004. Following the development of Round 1 and Round 2 Offshore Wind Farm sites, TCE in conjunction with DECC (now part of the Department for BEIS), embarked on a programme of site selection for offshore wind. As noted in NPS EN-3, TCE identifies potential development areas in accordance with the Crown Estate Act 1961, Government policy, plans and associated SEA works.
29. As discussed above, the Norfolk Boreas DCO application was founded on an extensive and rigorous UK wide zone selection process undertaken over many years, originally by the Government and TCE, and subsequently by an equally extensive and rigorous project specific assessment of alternative locations within the former East Anglia Zone. The aim of which was to select sites which offered the least environmental and technical constraints and the lowest cost of energy to the consumer.
30. The process and factors which influence and constrain site selection and design are described in NPS EN-3 (paragraphs 2.6.15 - 2.6.35) and are also discussed in ES Chapter 4 "Site Selection and Assessment of Alternatives" Section 4.4 and illustrated in plate 4.1 (Site selection process for Norfolk Boreas and Norfolk Vanguard).
31. The Assessment of alternative locations would consider:
- International sites
  - UK Alternatives outside existing Leasing Round Areas
  - UK Alternatives within Existing Lease Areas including:
    - Repowering existing wind farms

- Scottish Territorial Waters OWFs
- Round 2
- Round 1 and 2 Extensions
- Round 3; and
- ScotWind, Round 4 and 2017 Extension OWFs

### 4.3 Alternative Offshore Cable Corridors

32. An assessment of alternative offshore cable corridors is presented in Chapter 4 Site selection and assessment of alternatives of the Norfolk Boreas ES.
33. The site selection was undertaken in consultation with TCE. Possible landfall locations were reviewed within a large search area from The Wash to Harwich. The majority of the coastline in this area is protected by designations, including:
- North Norfolk Coast Area of Outstanding Natural Beauty (AONB) - from Hunstanton to Mundesley, just north of Bacton;
  - The Wash and North Norfolk Coast SAC;
  - North Norfolk Coast Ramsar site;
  - North Norfolk Coast SPA;
  - North Norfolk Coast Site of SSSI;
  - Broads National Park - from Sea Palling to Lowestoft; and
  - Suffolk Coast and Heaths AONB - from Kessingland, south of Lowestoft to Felixstowe.
34. In order to avoid these designations, potential landfall areas were identified as follows:
- Mundesley to Sea Palling (including Happisburgh South, the selected option);
  - Gorleston-on-Sea; or
  - Lowestoft to Kessingland (Lowestoft area).
35. In parallel with the identification of landfall options, the Applicant's in-house mapping team identified options for provisional offshore cable corridors from Norfolk Boreas to each of the three landfall options listed above. Offshore constraints taken into account in this exercise were:
- other offshore wind farms;
  - shipping and navigation routes;
  - existing offshore cables;
  - oil and gas infrastructure including platforms and pipelines;
  - Military Practice and Exercise Areas (PEXAs);
  - aggregate dredging grounds;

- nature conservation designations;
- commercial fishing; and
- sensitive seabed features.

36. Consequently, the offshore cable corridor alternatives could not take direct routes from Norfolk Boreas to the potential landfall areas; and the routes were lengthened due to the need to avoid constraints.

#### 4.4 Alternative Design Solutions

37. Alternative design solutions for further consideration in the assessment of alternatives would include:

- Fewer turbines;
- Increase in draught height;
- Seasonal restrictions on turbine operation; and
- Reductions in, or alternative methods for cable protection.

## 4.5 Summary of Alternative Solutions

38. A long list of potential alternative solutions would be presented in a table with the ability of each to meet the project need and objectives indicated with a tick or a cross.

## 5 Feasibility of Alternative Solutions

39. For those alternative solutions which had the ability to meet the project need and objectives, further assessment would be conducted into their feasibility. The Applicant anticipates that these may include:

- Alternative locations:
  - Atlantic Array Feasibility;
  - Rhiannon Feasibility; and
  - Navitus Bay Feasibility.
- Alternative Offshore Cable Corridors:
  - Corridor to Lowestoft landfall area
  - Corridor to Gorleston-on Sea landfall area; and
  - Corridor to Happisburgh South landfall area.
- Alternative Design Solutions:
  - Fewer turbines;
  - Increase draught height;
  - Seasonal restrictions for turbine operation; and
  - Reductions in, or alternative methods for cable protection.

### 5.1 Summary of Feasible Alternative Solutions

40. A summary Table would be presented to show the feasibility of alternative solutions. Those which were assessed as being feasible would be illustrated with a tick and those which were not with a cross.

## 6 Assessment of Effects of Feasible Alternative Solutions on Natura 2000 sites

41. Step 5; for those alternative solutions assessed as being feasible, an assessment would be completed on their potential effects on Natura 2000 sites

## 7 Assessment of Alternatives Summary

- 8 A summary would be provided of the assessment of alternatives.



# Norfolk Boreas Offshore Wind Farm

# Position Statement on

# Derogation

## Appendix 2 Compensation

Applicant: Norfolk Boreas Limited  
Document Reference: ExA.AS-3.D6.V1  
Deadline 6

Date: March 2020  
Revision: Version 1  
Author: Royal HaskoningDHV

*Photo: Ormonde Offshore Wind Farm*



Date	Issue No.	Remarks / Reason for Issue	Author	Checked	Approved
02/03/2020	01D	Final version for submission at Deadline 6	BT/DT/JT	VR/JH	JL



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## Glossary of Acronyms

AEol	Adverse Effect on Integrity
AOE	Alde-Ore Estuary
DCO	Development Consent Order
ExA	Examining Authority
FFC	Flamborough and Filey Coast
GW	Gigawatt
HHW	Haisborough, Hammond and Winterton
HRA	Habitats Regulations Assessment
LBBG	Lesser Black-Backed Gull
MHWS	Mean High Water Springs
MMO	Marine Management Organisation
MW	Magawatt
NE	Natural England
NV	Norfolk Vanguard
SAC	Special Area of Conservation
SoS	Secretary of State (SoS)
SPA	Special Protection Area

## 1 Introduction

1. The Applicant remains confident of its position of no AEoI on the basis of the maximum design envelope and mitigation measures put forward in the application and during the Examination. Following submissions made thus far in the Norfolk Boreas Examination, and the receipt of the ExA's further written questions, the Applicant has further reviewed all elements of the Project design envelope and provides below information on the potential compensation measures that could be proposed for the Norfolk Boreas project.

### 1.1 Examining Authority's request for Further Information

2. In the Examining Authority's (ExA) Further written questions and requests for further information [PD-009] issued on 12 February 2020, the ExA requested information on (among other matters):
  - Q2.8.3.8 Compensatory Measures (for the HHW SAC): Following on from Q2.8.4.5 what compensatory measures could be proposed to ensure that the overall coherence of the network of Natura 2000 sites is protected?
  - Q2.8.6.2 Compensatory Measures (Alde-Ore Estuary SPA, Flamborough and Filey Coast SPA and Greater Wash SPA): Following on from Q2.8.7.1 what compensatory measures could be proposed to ensure that the overall coherence of the network of Natura 2000 sites is protected?
3. In response to these questions the Applicant has included with sections 3, 4 and 5 of this document possible compensatory measures which could be considered further should this be required.
4. With respect to the Greater Wash SPA, Natural England has agreed with the Applicant that, following the commitment to mitigation measures made by the Applicant, AEoI can be ruled out for red-throated diver and common scoter due to Norfolk Boreas alone and in-combination due to construction activities and operations and maintenance vessels (REP4-040).
5. Prior to the additional mitigation stated above, Natural England had also agreed with the Applicant that AEoI can be ruled out for collision risk to little gull at the project alone and in-combination (REP4-040). Furthermore, following the additional mitigation to reduce collisions, the annual little gull mortality has been reduced from 3.9 individuals (in the original application) to 1.1 (REP5-059), thus further reinforcing the absence of AEoI on this feature.
6. Accordingly, the in-principle compensatory measures focus on the following European sites, features and impacts only:

European sites	Relevant qualifying features	Relevant impact from Norfolk Boreas
Flamborough and Filey Coast (FFC) SPA	Breeding kittiwake feature	Collision risk
Alde-Ore Estuary (AOE) SPA	Breeding lesser black-backed gull (LBBG) feature	Collision risk
Haisborough Hammond and Winterton (HHW) SAC	Reefs and sandbanks	Installation of cables/ cable protection on the seabed

7. Whilst the Applicant has produced this document to outline in principle compensation measures, it should be noted that the Applicant does not believe that any compensatory measures will need to be progressed due to the delivery of specific mitigation measures committed to by the Applicant which provide certainty that AEoI on the FFC SPA, AOE SPA and HHW SAC can be avoided. Therefore, the provision of evidence regarding in principle compensation measures is entirely without prejudice to the Applicant’s position that there will be no AEoI on the FFC SPA, AOE SPA or the HHW SAC.

## 1.2 Compensation Guidance

8. Following a conclusion by the Competent Authority that, following Appropriate Assessment, an AEoI on a Natura 2000 site(s) cannot be ruled out, that there are no alternative solutions and that there are IROPI, Article 6(4) of the Habitats and Wild Birds Directives “*requires that all necessary compensatory measures are taken to ensure the overall coherence of the network of European sites as a whole is protected.*”
9. DEFRA (2012) and EC (2012 and 2018) explain that for SPAs, the overall coherence of the Natura 2000 Network can be maintained by:
- compensation that fulfils the same purposes that motivated the site's designation;
  - compensation that fulfils the same function along the same migration path; and,
  - the compensation site(s) are accessible with certainty by the birds usually occurring on the site affected by the project.
10. The guidance provides an element of flexibility, recognising that compensation of a ‘like for like’ habitat and/or in the same designated site may not be practicable.

11. Compensation should not be used to address issues that are causing designated habitats or species to be in an unfavourable condition. This is the responsibility of the UK Government.
12. Ideally, compensation should be functioning before the effect takes place, although it is recognised that this may not always be possible, as stated in the EC (2012) guidance: *“in principle, the result of implementing compensation has normally to be operational at the time when the damage is effective on the site concerned. Under certain circumstances where this cannot be fully fulfilled, overcompensation would be required for the interim losses.”*
13. In line with the guidance, indicative compensation options for collision risk to kittiwake at the FFC SPA could include:
  - Prey enhancement;
  - Predator control / mortality reduction; and
  - Productivity improvement.

## 2 Compensatory Measures

14. The obligation under Article 6(4), if no alternative solutions and IROPI can be demonstrated, is for the relevant Member State to take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected.
15. However, as set out above, the Applicant has not identified an AEoI on any European site and, therefore, does not consider it necessary to identify compensatory measures. Furthermore, the nature and extent of compensatory measures can only be addressed if and when the precise nature of any AEoI has been identified and quantified, in this case by the competent authority. Specifically, the Applicant cannot know at this stage:
  - Whether the Examining Authority will advise, or the Secretary of State will conclude, that there is an adverse effect either alone or in-combination.
  - If the Examining Authority does advise, or the Secretary of State, concludes an adverse effect:
    - i. which particular species and/or habitats this relates to;
    - ii. to what degree the contended impact is predicted to be above the acceptable threshold for each relevant species or habitat (i.e. the level at which there would be no AEoI); and
    - iii. insofar as in-combination concerns arise, what proportion of an adverse effect is considered to be attributable to Norfolk Boreas as compared to any other plans or projects.

16. Notwithstanding, in accordance with the ExA's request, the Applicant has set out potential in-principle compensatory measures below, in the event that the Applicant's primary case (that Article 6(4) need not be invoked) is not accepted, in whole or in part.
17. Possible compensation measures for Norfolk Boreas have been considered based on their feasibility, deliverability and potential acceptability to key stakeholders, having regard to relevant guidance.
18. In particular, the Applicant has applied the following key principles:
  - DEFRA's Guidance recognises that, in designing compensation requirements, competent authorities and SNCBs should ensure the requirements are *"flexible to ensure adequate compensation without going further than necessary"*. DEFRA has in mind a case where the harm to the site proves to be less than anticipated, such that compensatory measures could be scaled back.
  - Insofar as compensatory measures may be found to be necessary, it has previously been established (10.175 and 10.176 of the Panel's findings and recommendations to the Secretary of State on the Able Marine Energy Park Order 24 February 2018) that the standard of "no reasonable scientific doubt" is not applicable to compensatory measures.
  - There is no legal authority on how the protection of the "overall coherence of Natura 2000" should be interpreted or applied. However, MN 2000 Guidance advises that, amongst other things, it would be necessary to consider the relative importance of a site to the coherence of the network. This could be done by reference to the species and/or habitats protected, the site's conservation objectives, the number and status of the habitats and species for which it has been designated, and its role in securing an adequate geographical distribution in relation to the range of the habitats and species concerned.
  - MN 2000 gives the example of a project that will damage an area of a rare habitat type with a very restricted range, and for which the site in question is one of the very few sites designated for that habitat type, where the compensatory measures may need to be substantial. Conversely, if the project will damage a habitat for a species which has a wide range across the EU, and for which the site in question has only a minor role to play in its conservation, the compensatory measures may be much less onerous.
  - The principle of proportionality is a fundamental principle of EU law contained in Article 5 of the Treaty on the Functioning of the European Union and is to be applied generally. The use of the word "necessary" imports proportionality into the Habitats Directive.



### 3 Flamborough and Filey Coast SPA In Principle Compensation Measures for Kittiwake

19. The Applicant has proposed to implement further mitigation measures from those previously set out in the application in order to “lessen or avoid” any adverse effects of Norfolk Boreas Offshore Wind Farm (‘the Project’) on kittiwake at Flamborough and Filey Coast (FFC) Special Protection Area (SPA).
20. Following the considerable reductions in the predicted impacts from the Project as a result of additional mitigation, the Applicant firmly maintains the position presented during the Examination, thus far, that in respect of the FFC SPA, an AEoI as a result of the Project alone and in-combination can be ruled out beyond reasonable scientific doubt.

#### 3.1 Context

21. In addition, the advantages and inherent compensation which renewable energy provides for the features of the Natura 2000 network should not be forgotten; with climate change representing the key pressure for a wide range of features.
22. The RSPB identifies climate warming as a major threat to kittiwakes. They state *“higher kittiwake breeding success was associated with lower sea surface temperatures during the breeding season” ... “climate change therefore poses a longer-term threat to kittiwakes” and “if they are to have any hope, it’s critically important that we act on climate change”*.<sup>1</sup>
23. The recent EU funded SEANSE project has assessed the impact of climate change on key bird species (Rijkswaterstaat Zee & Delta, 2020) and concluded that changes in prey availability due to climate change is the current pressure which appears to have the largest impact on kittiwake at the wider North Sea level. This is likely to be responsible for a substantially greater effect than impacts resulting from any other activity (including collision risk). Hence, the benefits of the Project would clearly outweigh the harm, although it is recognised that these are extremely challenging to quantify

#### 3.2 Kittiwake Compensation Measures

24. Mechanisms which may be suitable to achieve long-term, strategic compensation include;

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<sup>1</sup> <https://www.rspb.org.uk/our-work/conservation/projects/impacts-of-climate-and-oceanographic-change-on-seabirds/>;  
<https://www.rspb.org.uk/about-the-rspb/about-us/media-centre/press-releases/kittiwake-joins-the-red-list-of-birds-facing-risk-of-global-extinction/>

- Prey enhancement
    - closure of a defined area for sandeel fishing; and
    - purchase of sandeel fishery quota; and
  - construction of artificial nest sites.
25. While there is a range of potential measures to compensate collision risk to kittiwake at the FFC SPA, the Applicant considers that construction of artificial nest sites is the most deliverable within the timescales required for Norfolk Boreas.
26. It is noted that compensation would only be required should the Secretary of State conclude that an AEoI on the kittiwake at the FFC SPA cannot be ruled out.

## 4 Alde-Ore Estuary SPA In Principle Compensation Measures for Lesser Black Backed Gull

### 4.1 Context

27. The Applicant has proposed to implement further mitigation measures from those set out in the Application in order to “lessen or avoid” any adverse effects of the Project on lesser black-backed gull at Alde-Ore Estuary (AOE) Special Protection Area SPA.
28. Following the considerable reductions in the predicted impacts from the Project as a result of additional mitigation, the Applicant firmly maintains the position presented during the Examination thus far, that in respect of the AOE SPA, an AEoI as a result of the Project alone and in-combination can be ruled out beyond reasonable scientific doubt.

### 4.2 Lesser black backed gull compensation measures

29. Mechanisms which may be suitable to achieve long-term, strategic compensation include;
- Prey enhancement
    - closure of a defined area for sandeel and sprat fishing;
    - purchase of sandeel fishery quota; and
  - Predator control / Productivity improvement
  - Enhancement of adult survival / end culling under general licences
30. Whilst there are a range of potential measures to compensate mortality to lesser black-backed gull, only some of these measures would be appropriate for the focal SPA populations of AOE SPA. The Applicant therefore considers that measures to improve the breeding success, likely through predator control, are the most effective and deliverable within the timescales required for Norfolk Boreas.

31. It is noted that compensation would only be required should the Secretary of State conclude that an AEoI on lesser black-backed gull at the AOE SPA cannot be ruled out.

## 5 Haisborough Hammond and Winterton SAC In Principle Compensation Measures for Sandbanks and Annex I Reef

### 5.1 Context

32. The Applicant does not believe that any compensatory measures will need to be progressed due to the delivery of specific mitigation measures committed to by the Applicant which provide certainty that AEoI on the HHW SAC can be avoided. Therefore, the provision of evidence regarding in principle compensation measures is without prejudice to the Applicant's position that there will be no AEoI on the HHW SAC.
33. In addition, the advantages of, and inherent compensation value which, renewable energy has the potential to provide for the Natura 2000 network should be acknowledged; with climate change representing the key pressure for a wide range of Natura 2000 qualifying features.

### 5.2 Sandbanks and reef compensation measures

34. Mechanisms which may be suitable to achieve long-term, strategic compensation include;
- Establishment of a new Reef feature: Under the Habitats Directive, Article 17 reporting relates to Annex I Reef as a whole and does not distinguish between different types of reef. Therefore the applicant has considered the establishment of different types of reef including:
    - *S.spinulosa* reef
    - *Modiolus modiolus*;
    - *Mytilus edulis*;
    - *Serpula vermicularis*; and
    - *Lophelia pertusa*.
  - Site creation or extension on comparable habitat: There are several examples of where Annex I Reef is present outside of designated SAC boundaries, therefore the Applicant considers that this may deliver possible compensation.
  - Fisheries management: A reduction of intrusive fishing methods could allow Annex I reef to recover in areas of suitable habitat. The Applicant considers that support could be provided to assist in the delivery of fisheries management (both financial and through surveys); and
  - Removal of disused anthropogenic infrastructure and litter.

35. If compensation is deemed to be required following the Appropriate Assessment, the Applicant proposes that an extension to the HHW SAC would be the most appropriate measure to deliver compensation for both Annex I Reef and Annex I Sandbank prior to the construction of Norfolk Boreas.

## 6 Conclusions

36. As stated in the main Position statement on derogation submitted at Deadline 6 the Applicant is confident that a conclusion of no AEoI can be made pre-consent based on the evidence already submitted during the Examination.
37. In response to the ExAs further written questions and requests for further information [PD-009] the Applicant has provided, in this document, an outline of in-principle compensatory measures. The Applicant is progressing this further to provide a fuller derogation case for submission to the examination which includes more detail on the feasibility and deliverability of the possible compensatory measures.