

Norfolk Vanguard Offshore Wind Farm

Summary Overview on Habitats Regulations Assessment (HRA)

Applicant: Norfolk Vanguard Limited
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Photo: Kentish Flats Offshore Wind Farm



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1 DECLARATION OF CLIMATE EMERGENCY

1. In May 2019 the UK Government declared a climate emergency and many cities and towns have also declared a climate emergency. This led to the Climate Change Act 2008 (2050 Target Amendment) Order 2019 which commits the UK to a net reduction in greenhouse gas emissions (against the 1990 baseline) to net zero, a reduction of 100% by 2050.
2. The UK was the first major economy to set this legally binding target, which demonstrates the full understanding of the UK Government of the need for urgent action to expand renewable energy and to decarbonise traditional energy supply. The UK Government has recognised the need to escalate climate action for it to be a top priority.
3. The UK Government's statutory body, the Committee on Climate Change (CCC) Progress Report on reducing emissions for 2019 (CCC 2019) was critical of UK Government climate change action, albeit acknowledging the achievement in setting this new legal target. The Progress Report states:

"Projected progress. The Government's own projections demonstrate that its policies and plans are insufficient to meet the fourth or fifth carbon budgets (covering 2023-2027 and 2028-2032). This policy gap has widened in the last year as an increase in the projection of future emissions outweighed the impact of new policies.

Too often efforts have been isolated to single departments or have progressed too slowly. The foundations in the Clean Growth strategy have not been developed into a coordinated approach that will deliver even the existing carbon budgets."

4. One of the key policy actions is to *"Develop robust contingency plans that allow for additional low carbon generation to be brought forward in the event of delay or cancellation of planned projects, or imports of electricity below projected levels"*. However, this policy action has not even been partly achieved; there is not the scope and contingency for projects to be cancelled or even delayed.
5. This is highlighted by The Crown Estate's recent offshore wind portfolio reporting, which shows there is only a very small level of contingency in delivering the capacity required. The delivery of renewable energy must progress with far greater urgency (CCC, 2019).

2 NORFOLK VANGUARD

6. This is highly relevant in the context of the decision by the Secretary of State (SoS) on the Norfolk Vanguard Offshore Wind Farm Development Consent Order (DCO) application together with the DCO application for its sister project Norfolk Boreas (currently in Examination) and for which Norfolk Vanguard would provide enabling development. Both projects 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.
7. 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.
8. Norfolk Vanguard and Norfolk Boreas are being developed by Vattenfall Wind Power Limited (Vattenfall) with Norfolk Vanguard Limited and Norfolk Boreas Limited as the respective applicants. Their parent company, Vattenfall, is the second largest developer in the global offshore wind sector, and has invested over £3 billion in the UK, mainly in onshore and offshore wind. Vattenfall now operates more than 1GW of wind and solar power capacity in the UK and plans to invest over €5billion in renewables, mainly offshore wind, in Northern Europe by the end of 2020. The UK will continue to be a growth market for Vattenfall, with Norfolk Vanguard and Norfolk Boreas providing a very significant next step.

3 SECRETARY OF STATE CONSULTATION

9. On 6 December 2019 the SoS of the Department of Business, Energy and Industrial Strategy (BEIS) issued a request for information on (among other matters):

- Any mitigation, not discussed during the Examination, which could lessen or avoid any adverse effects on the integrity of the Flamborough and Filey Coast (FFC) SPA in relation to in-combination impacts on the qualifying kittiwake feature, and on the integrity of the Alde Ore Estuary (AOE) SPA in relation to in-combination impacts on the qualifying lesser black backed gull (LBBG) feature
- *"In addition or alternatively"* evidence as to alternative solutions, imperative reasons of overriding public interest and any in-principle compensatory measures (the Derogation Case)
- Specific mitigation solutions that would address the potential effects of cable protection on the features of the Haisborough, Hammond and Winterton (HHW) SAC
- *"In the absence of any identifiable mitigation measures"* evidence as to the Derogation Case

10. The Derogation Case relates to the later stages of Habitats Regulations Assessment, and if the applicable requirements are met, could be relied on to authorise Norfolk Vanguard even if prior HRA stages were to result in a negative outcome (that is to say, if, having completed an appropriate assessment the SoS is not satisfied that there would be no adverse effect on integrity (AEoI) in respect of the relevant European site(s)). It is the firm view of the Applicant that the Derogation Case does not need to be relied on by the SoS to authorise Norfolk Vanguard.

11. The Applicant's submission is accordingly focused on the following European sites, features and impacts only:

European sites	Relevant qualifying features	Relevant impact from Norfolk Vanguard
FFC SPA	Breeding kittiwake feature	Collision risk
AOE SPA	Breeding LBBG feature	Collision risk
HHW SAC	Reefs and sandbanks	Installation of cables/ cable protection on the seabed

12. It is noted that none of the above features are "priority" habitats or species (i.e. none is identified within the scheme of the Habitats Regulations as in imminent danger of disappearance or endangered).

13. In addition:

- The FFC SPA is designated for a kittiwake population of 44,520 pairs and the population of kittiwake is currently stable and/or increasing and has been for a considerable period
- The AOE SPA is designated for a breeding population of LBBG where NE have stated the target is to restore the size of the breeding population to a level which is above 14,074 whilst avoiding deterioration from its current level
- The HHW SAC is designated for Annex 1 sandbanks covering 678km² and Annex 1 reefs (*Sabellaria spinulosa*), an ephemeral species of the SAC.

4 CONSULTATION

14. In accordance with the SoS's information request, in preparing this response, the Applicant has consulted extensively with key stakeholders and particularly Natural England (NE) and the Marine Management Organisation (MMO) (as requested in the SoS's letter of 6 December 2019).

15. The Applicant has sought to engage actively and openly throughout the request for information period, sharing information on a without prejudice basis to provide parties with the opportunity to consider and contribute towards the development of the further mitigation measures and the development of in-principle compensation measures as part of the Derogation Case for Norfolk Vanguard. Written feedback from the parties has been taken into account in the Applicant's final submissions.

5 BASIS FOR SUBMISSION

16. The Applicant understands that the request for information 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.
17. The Applicant believes that the HRA derogation provisions need not be relied on by the SoS to authorise Norfolk Vanguard because it can be concluded on the basis of the information provided in the Norfolk Vanguard DCO application, together with the further information provided in this submission, with the required degree of certainty that Norfolk Vanguard would not give rise to any AEoI, alone or in-combination with other projects or plans.
18. The Applicant remains confident of its position of no AEoI on the basis of the maximum design envelope and mitigation measures put forward during the Examination. However, following receipt of the SoS's letter, the Applicant has rigorously reviewed all elements of the Project design envelope and further possible mitigation measures to ensure that all feasible mitigation has been deployed.

6 MAXIMUM DESIGN SCENARIO REDUCTIONS

19. Since the conclusion of the Examination, in consultation with both NE and the MMO, the Applicant has made further significant reductions to the design envelope and put forward further mitigation for Norfolk Vanguard 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 27m to 35m from Mean High Water Springs (MHWS) and of turbines with a capacity of 14.7MW and above from 27m to 30m from MHWS;
- A commitment to decommission cable protection at the end of the Norfolk Vanguard project life where it is associated with unburied cables due to ground conditions (where required for crossings this will be left *in situ*);
- 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; and
- Progressing agreements for the removal of disused cables in order to minimise the number of crossing locations that would require cable protection.

7 ORNITHOLOGY

20. At the close of the Examination, the Project design comprised 180 x 10MW turbines with a minimum draught height of 27m from MHWS, which was a refinement from the DCO submission based on 200 x 9MW turbines with a draught height of 22m from MHWS.
21. Following the close of the Examination, the Applicant has undertaken further investigations into the design envelope and has now committed to additional design revisions in order to further reduce the predicted collision risks. These include an increase in minimum turbine capacity (to 11.55MW) and a corresponding reduction in the maximum number of turbines to 158.
22. Additionally, the Applicant has committed to a further increase in minimum draught height to 35m (above MHWS) for turbine models up to and including 14.6MW capacity and to 30m (above MHWS) for turbine models of 14.7MW and above.
23. These measures are discussed further in the Additional Mitigation document (reference ExA; Mit; 11.D10.2).
24. As a result of the additional mitigation, 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 44 individuals (as at the close of the Examination) to 21, while using the Applicant's preferred parameters, the reduction is from 9.6 to 4.6 individuals (the Applicant has derived these parameters from a robust analysis of available evidence).
25. Thus the 14.7MW turbine at 30m (worst case) has predicted collision risks which are over 50% lower for kittiwake compared to the estimate submitted at the close of the Examination for the 10MW turbine at a draught height of 27m.
26. Using NE's preferred parameters (which the Applicant considers include a very large degree of precaution) the annual mortality apportioned to the AOE SPA has reduced from 5 individuals (at the close of the examination) to 2.6, while using the Applicant's preferred parameters the reduction is from 3 to 1.6 individuals (the Applicant has derived these parameters from a robust analysis of available evidence).
27. Thus the 14.7MW turbine at 30m (worst case) has predicted collision risks which are 46% lower for LBBG compared with the estimate submitted at the close of the Examination for the 10MW turbine at a draught height of 27m.
28. Norfolk Vanguard's contribution to the total in-combination kittiwake collision risk for the FFC SPA population using NE figures is between 6% (omitting Hornsea Project Three and Four (which Natural England advised the Applicant to present)) and 3% (including the two Hornsea projects) and using the Applicant's figures is between 1.4% and 0.6%.

On the basis of more realistic density dependent population model predictions, even the highly precautionary upper estimate of the number of in-combination kittiwake collisions attributed to FFC SPA is not at a level which would trigger a risk of population decline. The collision total also includes several other sources of precaution, as outlined below.

29. Norfolk Vanguard's contribution to the total in-combination LBBG collision risk for the AOE SPA population using NE's figures is 2.6 (4.8%) and using the Applicant's figures is 1.6 (2.8%); both well below the in-combination collision total predicted for the consented Galloper wind farm. Even with the most precautionary of population modelling methods, the reductions in growth rate (no more than 1.4%) are not considered likely to result in a population decline. More realistic collision estimates predict a growth rate reduction of no more than 0.3% (density independent) or 0.2% (density dependent). As above, the collision total contains several other sources of precaution.
30. The revised collision estimates for all species are now comparable or lower to those for consented projects, and on a per megawatt basis, Norfolk Vanguard's impacts are an order of magnitude lower than those for most North Sea wind farms consented in the last five years.
31. The Applicant's full position is discussed further in the Applicant's Ornithology Position Statement (reference ExA; Pos; 11.D10.2).

8 OVER PRECAUTION

32. 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. 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.
33. 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. 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.

9 HHW SAC

34. At the close of the Examination, the Applicant had made a significant number of mitigation commitments with regard to the HHW SAC, embedded in the project design and secured in the HHW SAC Site Integrity Plan (SIP), including reductions in cable numbers, avoidance of Annex 1 reef where possible, and reductions in amounts of cable protection which might be required.
35. The Applicant is now committed to decommissioning cable protection at the end of the Norfolk Vanguard 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 Appendix 3 of the Additional Mitigation, document reference ExA; Mit; 11.D10.2.App3) and ensures that habitat loss will be long term over the project life rather than permanent (see Appendix 2 of the Additional Mitigation, document reference ExA; Mit; 11.D10.2.App2).
36. In addition, the Applicant is now proposing a new commitment to use no cable protection in the priority areas of the HHW SAC to be managed as reef, unless otherwise agreed with the MMO in consultation with NE. This will ensure that there is no long term habitat loss in these priority areas, such that any habitat loss within the HHW SAC (outside the priority areas) would not hinder the recovery target for Annex 1 reef and would have no AEoI on the HHW SAC due to the very small scale of loss, in accordance with the NE advice note regarding consideration of small scale habitat loss within SACs in relation to cable protection (REP4-062).
37. 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 discussed with BT Subsea. Appendix 4 (document reference ExA; Mit; 11.D10.2.App4) 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.
38. These measures are discussed further in the Additional Mitigation document (reference ExA; Mit; 11.D10.2).
39. Applying the very precautionary worst case maximum design scenario, the maximum potential impact to the sandbank and reef features 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% 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 micro-siting it is likely that there will be no loss of Annex 1 Reef and in the unlikely event that micro-siting 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 1 Reef to favourable condition. This is discussed further in the HHW SAC Position Statement (reference ExA; Pos; 11.D10.1).

40. NE has advised in their advice note regarding consideration of small scale habitat loss within SACs in relation to cable protection (submitted at Deadline 4, REP4-062) 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;
- That the scale of loss is inconsequential including other impacts on the site/feature/sub feature.

41. The Applicant considers that all of the above are met in the case of Norfolk Vanguard.

10 AEOI CONCLUSION

42. When the totality of the comprehensive body of best available data and analysis provided by the Applicant is taken into account alongside the additional mitigation, particularly the further significant reductions to the project envelope committed to following the close of Examination, the Applicant firmly believes that there cannot be reasonable scientific doubt in a conclusion of AEOI of all European site(s), alone or in combination with other projects or plans.

43. However, should the SoS conclude otherwise, the Applicant, without prejudice to its position, has provided an alternative route for the SoS to approve Norfolk Vanguard and grant the DCO, by preparing a comprehensive Derogation Case, including in-principle compensation measures.

11 NOROFLK VANGUARD DEROGATION CASE

11.1 Consideration of alternatives

44. The Applicant has adopted a structured approach to the consideration of alternatives, supported by guidance presented in the Habitats Regulations Derogation Provision of Evidence (reference ExA; IROPI; 11.D10.3). When tested against the core Project objectives, the Norfolk Vanguard Derogation Case clearly demonstrates that there are no feasible alternatives to Norfolk Vanguard based on the adjusted design envelope.
45. One of the key Project objectives of Norfolk Vanguard, 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 Vanguard could start generating power in 2026, with Norfolk Boreas following closely behind; generating 3.6GW of offshore wind power when fully operational.
46. 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 Vanguard and one or more alternative offshore wind farms (any of which would be subject to HRA) but rather Norfolk Vanguard and other wind farms.
47. 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.

11.2 Imperative reasons of overriding public interest (IROPI)

48. The HRA derogation provisions provide that a plan or project having an AEoI on a designated site may proceed, subject to a positive conclusion on the absence of alternatives and provision of any necessary compensation, if the plan or project in question must be carried out for reasons of IROPI.
49. When balancing IROPI to the risk of harm for Norfolk Vanguard, the HRA Derogation Case clearly demonstrates that there is an urgent need for Norfolk Vanguard which outweighs any very limited harm to the protected sites.
50. There is potential for Norfolk Vanguard to be instrumental in limiting the negative consequences of climate change and the threats it poses to the environment. Researchers directly linked the effects of climate change to declining populations of seabirds due to the impact of increases in sea surface temperatures and prey availability (Rijkswaterstaat Zee & Delta, 2020). The long-term, temporary, habitat loss due to cable

protection is very small. The range of impacts on both the kittiwake feature of the FFC SPA, when account is taken of a total designated population of 44,520 breeding pairs, and on the LBBG feature of the AOE SPA is also small.

51. The urgent need for the Project is fully aligned with the objectives of the National Policy Statements (NPSs), the UK's legally binding net zero commitment and Government's ambition to deliver 40GW of offshore wind by 2030. The Project will bring wider benefits to the public through helping combat climate change and the risks it presents to human health, public safety and the environment.
52. It has the potential to contribute substantially to the UK economy, creating skilled jobs and supporting the continued development of the UK's offshore wind supply chain and skills base.

11.3 Compensation

53. If the SoS does conclude AEol the Applicant has, through extensive consultation with relevant stakeholders, and NE and MMO in particular, developed a range of in-principle compensation measures if required, including measures, secured in the DCO, which could be brought into immediate effect and which the Applicant considers would be sufficient to ensure the coherence of the Natura 2000 network is maintained. Compensation measures for Norfolk Vanguard have been screened in or out based on their feasibility, deliverability and acceptability to key stakeholders, having regard to relevant guidance.

11.4 Sandbanks and reef

54. In order to compensate for the long term temporary impact associated with cable protection within the HHW SAC the Applicant proposes providing support for an extension of the HHW SAC to encompass areas of Annex 1 habitat outside the SAC.

11.5 Kittiwake

55. In order to compensate for the impact to the kittiwake feature of the FFC SPA the Applicant proposes the construction of artificial nest sites to be constructed and available for use prior to first operation of any wind turbine forming part of the Project.

11.6 LBBG

56. In order to compensate for the impact to the LBBG feature of the AOE SPA the Applicant proposes delivery of measures to improve the breeding success of LBBG at AOE SPA (likely through predation control).
57. The Applicant is confident that each of these measures would be sufficient to compensate for the maximum extent of Norfolk Vanguard's adverse effect, should an adverse effect be determined by the SoS. The Applicant also considers both the benthic

and ornithology measures, if taken forward, would have wider ecological benefits to the overall coherence of Natura 2000.

12 CONCLUSION

58. The UK needs to urgently deploy significant volumes of large scale low carbon generation to meet its legally binding net zero commitment. Norfolk Vanguard is a major infrastructure project which responds directly to fundamental and urgent national objectives, delivering significant volumes of low carbon generation in the 2020s.
59. The Applicant has continued to vigorously reappraise all elements of the design envelope for Norfolk Vanguard and 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.
60. Without prejudice to the Applicant's position that Norfolk Vanguard will not give rise to any adverse effect on a European designated site, the Applicant has provided the SoS with information to support an alternative route for the SoS to approve Norfolk Vanguard.
61. The Applicant is confident that, should the SoS conclude AEoI for any reason, the HRA Derogation case submitted provides the necessary information to support a clear and overriding case for Norfolk Vanguard to be approved by the SoS.