

Norfolk Boreas Offshore Wind Farm Consultation Report Executive Summary

Applicant: Norfolk Boreas Limited
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Photo: Ormonde Offshore Wind Farm

Preface

This document is the Executive Summary of the 352 page Norfolk Boreas Consultation Report. The complete report will be submitted to the Planning Inspectorate, as part of the Norfolk Boreas Development Consent Order application, alongside the Environmental Statement and other documents, on Tuesday 11th June 2019.

1 EXECUTIVE SUMMARY

1.1 Purpose of the Consultation Report

1. This Consultation Report has been produced in order to fulfil the relevant requirements of section 37 of the Planning Act 2008, as amended ('the Act'). This requires Norfolk Boreas Limited ('the Applicant'), a fully owned subsidiary of Vattenfall Wind Power Limited (VWPL), to provide a Consultation Report as part of its application for development consent for the Norfolk Boreas Offshore Wind Farm ('the Project'). The Consultation Report details the consultation activities that have been undertaken, the responses received to pre-application consultation and how these have informed the evolution of the Project and supporting assessments.
2. This report demonstrates how the Applicant has complied with sections 42, 47, 48 and 49 of the Act, and has had regard to section 50 of the Act. A Statement of Compliance has been prepared which confirms that the Applicant has complied with all relevant provisions (see Chapter 31 of the Consultation Report).
3. Consultation is an important part of the planning and development process. The Act requires developers to publicise their proposals widely as well as consult with the local community, local authorities, statutory bodies and persons with an interest in land potentially affected by the proposed Nationally Significant Infrastructure Project (NSIP). This process is referred to as 'pre-application consultation' and must be carried out before an application for a Development Consent Order (DCO) can be accepted by the Planning Inspectorate on behalf of the Department for Business Energy & Industrial Strategy (BEIS).
4. Aligned with this duty to consult are Vattenfall's principles and approach to consultation (see Section 4.5). Throughout the pre-application consultation, the Applicant has engaged and consulted with statutory bodies, including local authorities, local communities, relevant landowners, and the general public.

1.2 Early Project definition and development

5. In 2016, the Applicant was awarded an Agreement for Lease (AfL) by The Crown Estate for the seabed areas within which it will develop the Project, with a proposed export capacity of up to 1,800MW.
6. The AfL for the Project is located adjacent to two marine blocks, where a separate AfL has been awarded to Norfolk Vanguard Limited, who is also a wholly owned subsidiary of VWPL. These three blocks were part of a large zone in the Southern North Sea, off the Norfolk/Suffolk coast, which was one of nine zones originally offered up for competitive tender by The Crown Estate in 2008, as part of its "Round Three" proposals (see Section 3.5). Given the proximity of these marine blocks,

VWPL recognised the potential to develop and operate Norfolk Vanguard and the Project in sequence, as a “cluster”, with potential ultimate benefits for the consumer including efficiency savings and keeping costs down through:

- Shared infrastructure;
 - Improved knowledge of constructing and operating in the area; and
 - Phased deployment of innovative, best-in-class technology
7. Developing projects together also allows for an efficient, joined-up consultation process, helping communities and stakeholders input into the best possible project designs, while limiting “consultation fatigue”.
 8. An early review of potential offshore cable corridor and landfall options, informed by mapping existing constraints and opportunities and by relevant consultation (see Chapter 5 in the Consultation Report – ‘Connecting to the National Grid’) helped to identify an appropriate connection point for the Project into the National Grid transmission network. In 2016 a Grid Connection Offer representing an appropriate, strategic, economical and efficient connection location for the of 1,800MW of offshore wind generation to the National Grid Electricity Transmission System in East Anglia was received from National Grid Electricity Transmission (NGET). The Applicant accepted the offer to connect power from the Project into the National Grid at the existing NGET 400kV substation near Necton in Breckland, Norfolk. The acceptance of this offer enabled VWPL to follow a cluster strategy for development, co-locating essential onshore infrastructure, and optimising the value of engagement.

1.3 The approach to engagement and consultation relating to the Norfolk Boreas and Norfolk Vanguard projects

9. As noted briefly above and explained further in Section 2.1, a joined-up approach to development and associated engagement and consultation has been key to optimising the value of stakeholder and community feedback. Given that the Norfolk Boreas site and the Norfolk Vanguard OWF sites have separate discrete locations, there are some variance in the constraints and opportunities influencing both Norfolk Vanguard’s and the Applicant’s Project proposals. Therefore both Norfolk projects have been subject to separate Environmental Impact Assessments (EIA), with Norfolk Vanguard offshore wind farm EIA developed first – while the Project EIA was timed to enable submission of its DCO application one year later. Thus, the Project’s EIA builds on intelligence gathered during the Norfolk Vanguard EIA process.
10. The Project and Norfolk Vanguard commenced informal pre-application consultation, including scoping, in October 2016 and, from the outset, consultation

materials described the existence of two strategically-linked projects and noted the intention to optimise efficiencies in a cluster development approach. Consulting on matters relevant to both projects at once, undertaking aspects of the construction and power generation operations together, were noted as opportunities to reduce the burden of participation on communities and stakeholders, reduce impacts overall, enhance innovation and secure economic efficiencies to be passed on to the consumer. This approach allowed Norfolk Vanguard Limited and the Applicant to have regard to consultation feedback and, accordingly, this has helped to shape both projects (as explained further in Section 2.1); for example, with alterations and refinements to the cable route. It has also enhanced the Project's capacity to innovate in order to deliver significant embedded mitigation, such as the commitment to use High Voltage Direct Current (HVDC) technology. Thus, where relevant, consultation carried out by Norfolk Vanguard Limited is referred to in this report. However, for in-depth detail of the consultation undertaken by Norfolk Vanguard Limited please refer to the Norfolk Vanguard Consultation Report which can be located on the Norfolk Vanguard page of the National Infrastructure Planning website (<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010079/EN010079-001341-5.01%20Consultation%20Report.pdf>).

11. The Project has undertaken a multi-phase approach to consultation, as is appropriate for a NSIP. Different phases of consultation have been timed to reflect key milestones in both projects' development; at points where responses could scope and inform the related assessments and help define the design of the Project. This has allowed meaningful input into Project development. Thus many early Project refinements determined during informal consultation, especially in relation to onshore elements of the proposals, were driven by the Norfolk Vanguard Limited EIA process.
12. In early 2017, the Applicant was awarded an AfL by The Crown Estate for its export cable corridor. Scoping to agree additional parameters and method statements, not already determined, followed shortly afterwards.

Norfolk Boreas: Ongoing informal engagement with local communities and consultees

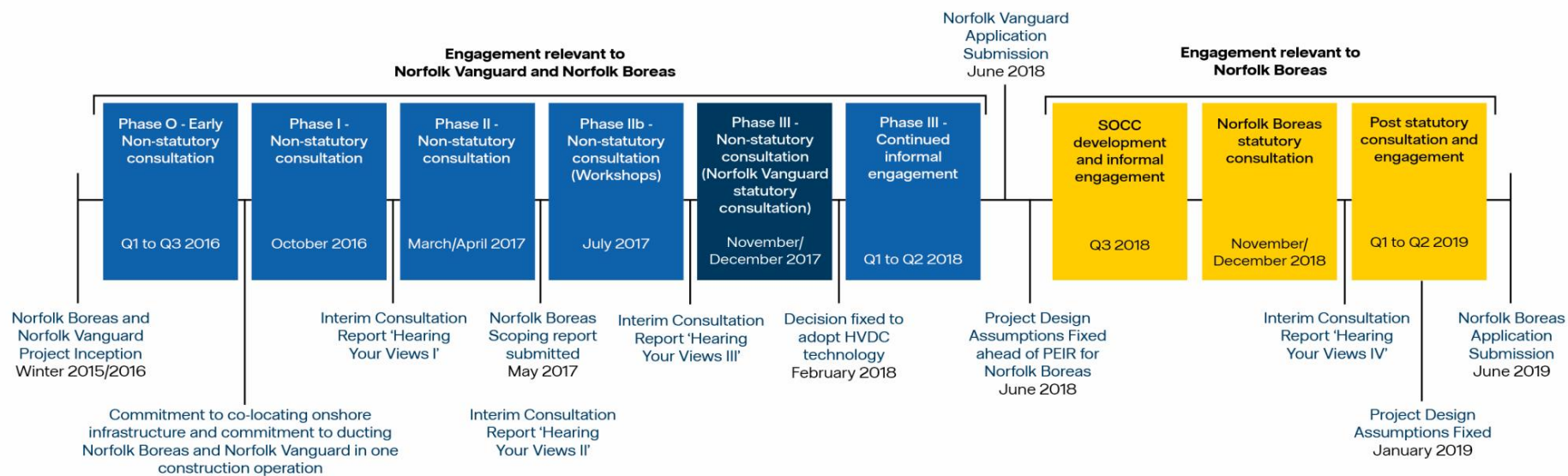


Plate 1 Overview of pre-application consultation

13. A Statement of Community Consultation (SoCC) was prepared for the Project. As set out in the Act (section 47) the Applicant consulted with the relevant local authorities on the content of the SoCC. Having regard to their guidance and advice the SoCC was finalised and the SoCC notice was publicised appropriately (see Chapter 22 of the Consultation Report and Appendix 22.2). Thereafter, consultation was undertaken in accordance with the SoCC.
14. A description of the potential synergies to be derived by developing, constructing, operating and decommissioning the Project and the NV offshore wind farm project – accepted by the Planning Inspectorate in June 2018 and, at the point of preparing the SoCC, currently in examination – was provided in the SoCC. In this context the SoCC notes the requirement to consider the possibility that Norfolk Vanguard may not be built. In order for the Project to be considered as an independent project by stakeholders and by the Planning Inspectorate, this scenario must be provided for within the Project DCO application. Therefore the SoCC and the Preliminary Environmental Information Report (PEIR) consider two scenarios for the Project:
 - **Scenario 1 – Norfolk Vanguard and the Project** – Norfolk Vanguard proceeds to construction, and installs ducts for Norfolk Boreas and carries out other shared enabling works to benefit Norfolk Boreas.
 - **Scenario 2 – the Project only** – Norfolk Vanguard does not proceed to construction and Norfolk Boreas proceeds alone. Norfolk Boreas undertakes all works required as an independent project.
15. As well as engaging with communities and residents within the Primary Consultation Zone (PCZ) as described in the SoCC (see map in Appendix 22.7), the Applicant also engaged with stakeholders, including relevant statutory and non-statutory consultees and the other members of the public. This engagement informed the iterative design of the Project, the development of the EIA and ensured that stakeholders were aware of Project developments.
16. The consultation undertaken throughout the pre-application stage has exerted significant influence on the Project's evolution, and the Applicant is grateful to all those who have engaged with the Project and responded to consultations. Many ideas, concerns and opinions expressed by consultees have directly influenced the appraisal of alternative solutions for the Project. Where it has not been possible to adapt the Project in ways suggested by consultation responses, the Applicant has had regard to those responses and/or been able to provide the rationale for not making the changes being sought. As well as recording the consultation responses and how they have influenced the Project within this Consultation Report, there have also been interim Consultation Reports directed primarily at community

consultees, notably a series of reports entitled “Hearing Your Views”, of which there have been four to date. Table 1.1 summarises pre-application consultation, and notes where the materials informing consultation related to both sister projects or primarily Norfolk Vanguard or primarily the Project.

Table 1.1 Responses to pre-application consultation

Step in the EIA process	Relevant Section of the Act	Dates	Number of respondents	Where addressed in this report
Phase 0 The Project & Norfolk Vanguard	N/A	March – September 2016	N/A	Chapter 9 - 11
EIA Scoping The Project & Norfolk Vanguard	N/A	October 2016	N/A	Chapter 7
Phase I The Project & Norfolk Vanguard	Non-statutory consultation with local communities	October 2016 – March 2017	788 signed in to drop-in exhibitions 126 written responses	Chapter 12
	Non-statutory consultation with technical consultees		N/A	Chapter 12
Phase II The Project & Norfolk Vanguard	Non-statutory consultation with local communities	March 2017 – October 2017	830 signed in to drop-in events 260 written responses	Chapter 13
	Non-statutory consultation with technical consultees		N/A	Chapter 13
Phase IIb The Project & Norfolk Vanguard	Non-statutory consultation with local communities	July 2017	Numbers attending workshop CRS – 55 Substation – 42 Numbers attending drop-in CRS – 60 Substation – 23	Chapter 14
Phase III statutory consultation for Norfolk Vanguard. Barring some offshore elements of the Project, the principles presented for consultation and input from consultees could be applied across	Statutory consultation under EIA regulations	7 th Nov – 11 th December 2017	77 formal statutory consultation responses to the Norfolk Vanguard Preliminary Environmental Information Report (PEIR) ¹	Chapter 18
	Non-statutory consultation with technical consultees		608 signed in to drop-in exhibitions 783 written submissions during	Chapter 18

¹ Not including responses via feedback form, which are counted in the section 47 statutory consultation numbers.

Step in the EIA process	Relevant Section of the Act	Dates	Number of respondents	Where addressed in this report
both Norfolk Vanguard and the Project. Accordingly, relevant responses received for the Norfolk Vanguard consultation influenced the development of Norfolk Boreas. The Norfolk Vanguard statutory consultation also made clear that Norfolk Vanguard would seek to consent enabling works (for instance, construction of ducting) for the Project.			the statutory consultation period (plus two newspaper adverts)	
Norfolk Vanguard Publicity Notices	Section 48		Five newspaper notices	Chapter 18
Phase IV The Project statutory consultation	Section 42 Preliminary Environmental Information Report	7 th Nov – 9 th December 2018	Over 40 formal statutory consultation responses to the Preliminary Environmental Information Report (PEIR) ²	Chapter 21
	Section 47		364 signed in to drop-in exhibitions 100 written submissions during the statutory consultation period (plus two newspaper adverts)	Chapter 22
Publicity Notices	Section 48		Five newspaper notices	Chapter 23
Post statutory consultation engagement	Non-statutory consultation with local communities	10 th December 2018 – May 2019	N/A	Chapter 28

² Not including responses via feedback form, which are counted in the section 47 statutory consultation numbers.

Step in the EIA process	Relevant Section of the Act	Dates	Number of respondents	Where addressed in this report
	and technical consultees			
Targeted non-statutory consultation (Minor change to Offshore Order Limits)	Targeted non-statutory consultation	1 st February – 4 th March 2019	11 consultation responses to Offshore Order Limits Change	Chapter 27
Targeted non-statutory consultation with key stakeholders such as the Marine Management Organisation and relevant Local Planning Authorities	Targeted Non-statutory consultation on key application documents including the DCO, Works Plans, Land Plans, the Explanatory Memorandum, and an extract of the Book of Reference.	22 nd March 2019 – 17 th April 2019	Five consultation responses received	Chapter 28

1.4 Structure of the Consultation Report

17. The below table sets out how this report is structured to comply with relevant legislation.

Table 1.2 Structure of the Consultation Report

Chapter	Title	Overview
Chapters 1 - 3	Executive Summary and Introduction	Overview summary of the outcome of pre-application consultation and introduction to the Project.
Chapters 4 - 7	Regulatory Context and Approach to Consultation	Approach to consultation with regard to the requirements of the Act and accompanying guidance.
Chapters 8 - 18	Non-statutory consultation (Phase 0 to Phase III)	Non-statutory 'informal' consultation conducted prior to the formal sections 42, 47 and 48 consultation and publicity stages under the Act.
Chapter 19	Project description: Scenario 1 and Scenario 2	Explaining the two Scenarios considered for Norfolk Boreas
Chapter 20	Approach to statutory consultation under sections 42, 47 and 48 of the Act	The general approach to the statutory pre-application consultation.
Chapter 21	Formal Consultation under section 42 of the Act	What has been done to satisfy the requirements of section 42 of the Act.

Chapter	Title	Overview
Chapter 22	Formal Consultation under section 47 of the Act	Approach to the section 47 consultation including development of the Statement of Community Consultation and the methods used to consult.
Chapter 23	Formal Consultation under section 48 of the Act	Development and publication of the section 48 notice.
Chapter 24	Summary of Responses under section 42 of the Act	On a topic by topic basis, responses received from section 42 consultees and summarises the regard that has been had to the responses in finalising the Application.
Chapter 25	Summary of Responses under section 47 of the Act	On a topic by topic basis, responses received from section 47 consultees and summarises the regard that has been had to the responses in finalising the Application.
Chapter 26	Summary of Responses under section 48 of the Act	On a topic by topic basis, responses received from section 48 consultees and summarises the regard that has been had to the responses in finalising the Application.
Chapter 27	Targeted consultation on Offshore Order Limits Change	A description of the targeted consultation in relation to a change to the Offshore Order Limits
Chapter 28	Post-Formal Consultation Engagement	Further consultation conducted following the formal consultation in considering outstanding issues and concerns.
Chapter 29	Skills, employment and supply chain engagement	Approach and activity regarding skills, employment and supply chain engagement
Chapter 30	Conclusion	A summary of the pre-application consultation undertaken for the Project.
Chapter 31	Full Statement of Compliance	A full statement of compliance

1.5 Consultation process

18. This Consultation Report, as required by the Act, gives details of:
- What has been done in compliance with sections 42, 47 and 48 of the Act in relation to a proposed application that has become the application;
 - Any relevant responses received to formal consultation undertaken; and
 - The account taken by the applicant of any relevant responses.
19. The Applicant recognises the importance of engaging with stakeholders, including communities, through its work. The Applicant's principles, which are adhered to throughout all its projects, including Norfolk Boreas are:
- Openness and transparency;
 - Providing opportunities to get involved;

- Sharing information and understanding;
- Listening and responding; and
- Respect.

20. Below is a description of how consultation feeds into the decision-making process, which has shaped the Norfolk Boreas proposals and how the Applicant has taken regard of consultation feedback.

1.6 Responses to feedback and Project decisions influenced by consultation

21. The Project has followed an EIA process that has been systematic, comprising a sequence of tasks that is defined both by regulation and by best-practice, and iterative with opportunities for addressing concerns throughout. The process has been analytical requiring the application of specialist skills from a wide range of disciplines; professional experience has been applied in order to reach impartial, objective decisions. The process has also been consultative, with provision being made for obtaining information and feedback from interested parties including local authorities, communities and statutory and non-statutory bodies. All responses received to consultation have been considered, and the Project has benefitted greatly as a result, ensuring for example:

- Robust assessments have been undertaken to complete the Environmental Statement (ES);
- Attention to matters of importance, interest and concern to stakeholders have influenced project site selection, design and embedded mitigation; and
- Improved the accessibility of Project information and enhanced participation.

22. Strategic decisions regarding fundamental project locations (such as the offshore wind farm location and grid connection point) have been made in conjunction with the Crown Estate and National Grid respectively.

23. Responses focussed on particular topics, and relevant policies and management practices (for example local or national frameworks, and the management of different aspects of the environment) were considered to a large degree through the Evidence Plan Process (EPP) (see Chapter 9). The local knowledge of residents, business people, those with land interests and the wider community - which encompasses a broad spectrum of experience, perspectives and priorities - has been systematically compiled, during distinct consultation episodes. In between consultation events, there has also been on-going communication with interested parties and, as project knowledge has evolved and been shared widely, local residents have continued to provide views and note concerns and ideas. The multi-disciplinary design team formed to undertake the development has been made

aware of local feedback appropriately throughout, and also in attendance at public events throughout the process to answer questions.

24. It should be noted that many points of interest to community consultees raised in relation to the Project, and particularly with respect to constraints and opportunities that might influence siting of onshore project elements, were largely addressed through non-statutory consultation phases. Similarly, the EPP process has built on the Applicant and stakeholders' enhanced relevant knowledge, and been particularly instrumental in determining the extent of additional surveys required for the Project and the methodologies deployed by the Applicant to assess impacts from Scenario 1 and Scenario 2; as well as expanding the cumulative impact assessments for certain topics of the ES.
25. The Applicant has applied expert judgement in deciding how to respond to feedback received within the Project development process, taking into account and balancing complex environmental, physical, technical, commercial and social considerations and opportunities as well as engineering, consenting, and feasibility requirements.
26. The analysis of alternatives, and decisions and reasoning of the solutions adopted are described in the ES (Chapter 4 Site Selection and Alternatives of the ES). Summaries of how the Applicant has responded to consultees, including in instances where the breadth of concerns and priorities raised by consultees in relation to certain alternatives considered by the Project have uncovered conflicting consultee preferences, are described within this Consultation Report and Appendices.
27. Decisions the Applicant has made in response to consultation, listed in the order in which they have influenced the Project design assumptions are summarised below (sections 1.6.1 – 1.6.19).

1.6.1 Commitment to ducting Norfolk Vanguard and Norfolk Boreas in one construction operation

28. VWPL was committed (subject to both Norfolk Boreas and Norfolk Vanguard receiving development consent and progressing to construction) to a strategic approach to delivering Norfolk Boreas and Norfolk Vanguard. This approach also included a commitment to bury onshore transmission cables, rather than transmit power from the coast via a circuit of overhead lines.
29. Between September 2016 and February 2017 discussions with relevant Local Planning Authorities (LPAs) resulted in the Applicant determining to install the transmission ducts for both projects together as part of the same construction phase. This strategic approach would allow the main civil works for the onshore

cable route to be completed in one construction period and in advance of cable delivery, preventing the requirement to reopen the entire cable corridor.

30. This measure addressed concerns expressed by Local Authorities that the projects would cause significant disruption if the Applicant were to return to “open up Norfolk” a second time. This decision also helps to ensure that under Scenario 1 (see Chapter 19 of the Consultation Report) potentially both Norfolk Boreas and Norfolk Vanguard could be delivered within the timeframes set by the UK government in relation to targets on renewable energy and CO₂ reduction.

1.6.2 Refinements to the onshore cable corridor construction process

31. From Phase I and through Phase II, informal drop-in events attracted interest from the farming community and those with land interests in the Project area. Many highlighted concerns and ideas regarding how to maintain soil quality along the onshore cable corridor route, and how to manage wet soils and drainage issues effectively during construction, impressed the value of reinstating the land quickly following trenching. The duct installation strategy evolved accordingly.
32. A sectionalised approach was developed in order to minimise impacts. Construction teams would work on a short length (originally approximately 100m section, extended to approximately 150m as a result of the HVDC decision) and once the cable ducts have been installed, the section would be back-filled, and the top soil replaced before moving onto the next section. This would minimise the amount of land being worked on at any one time and would also minimise the duration of works on any given section of the route. In response to this dialogue, the proposed methodology was described in a Landowner Information Pack (with further detail and embedded mitigation included in a second edition). The methodology requires a running track along the cable corridor to facilitate the work-front approach, which also has advantages in terms of reducing works traffic on local highways and byways.

1.6.3 Agreement on some of the principles for management of potential effects of the Project on Special Areas of Conservation (SACs)

33. As a result of the Evidence Plan Process (EPP), it has been agreed with stakeholders that any sediment arising from within the SAC which overlaps with the offshore cable corridor is deposited back into the SAC to allow the sandbank system to be replenished and the Applicant has committed to this within the DCO application. In order to inform the dialogue and impact assessments, Natural England requested further information on what would happen to the sediment following pre-sweeping and disposal. The Applicant commissioned a study by ABPmer (maritime consultancy) including assessment of whether the sediment would stay within the

SAC and replenish the sandbank system. The conclusions of the report were positive and confirm that the system would recover within natural variation.

1.6.4 Undertaking extensive geophysical surveying along the onshore cable corridor and environmental survey area

34. Phase 0 and Phase I consultation undertaken through the EPP highlighted the potential for encountering buried archaeological sites along the proposed cable corridor. Extensive geophysical surveying and high resolution aerial photography was therefore undertaken over a more extensive area of land than a project of this type would normally be expected to undertake. This action has enabled sensitive site selection in terms of avoiding disturbance to archaeological remains, and has provided high-quality data, which is of value to organisations including Norfolk County Council (NCC) and the National Trust. Additional geophysical surveying (Phase IV) has focussed on the onshore substation and on the National Grid extension areas.

1.6.5 Locating landfall at Happisburgh South

35. Following consultation with nature conservation bodies and site selection work the offshore cable corridor has been refined to avoid the Cromer Shoal Chalk Beds Marine Conservation Zone (MCZ), therefore removing any direct impacts of the Project on the Marine Conservation Zone. Happisburgh South also presented the following advantages:
- Allows co-location of Norfolk Boreas and Norfolk Vanguard landfall and reduces the total amount of area directly impacted;
 - Avoids populated areas as far as possible;
 - Avoids areas at risk of flooding as far as possible;
 - Provides opportunities associated with Happisburgh archaeology; and
 - Avoids technical engineering and feasibility risks associated with locating infrastructure in the brown field site within the Bacton Gas Terminal land.

1.6.6 Determining that long Horizontal Directional Drilling (HDD) should be deployed at the landfall

36. Long HDD at landfall requires no works on the beach or construction vehicular access to the foreshore. This will result in no restrictions or closures to the beach and maintains access for the public during construction. The Applicant has also committed to not using the beach car park at Happisburgh South as part of the construction works at landfall.

1.6.7 Refining the onshore cable corridor

37. An iterative and multidisciplinary approach incorporating engineering, buildability, environmental, landowner, community, and stakeholder considerations was used in the development of cable corridor options. A series of Project team workshops were held to ensure each of the factors were considered effectively. During the refinement of the onshore cable corridor, views on the siting of above ground infrastructure, including Cable Relay Stations (CRS) (as required at the time), fed into determining the final route. As the routes became more defined, and indicative routes were shared with those with land interests, and others, feedback also became more specific. Some changes were undertaken to avoid disturbing possible buried remains and archaeological features (such as around Kerdiston Church), giving better configuration for crossing the Marriott's Way and route changes to accommodate landowner requests, for example to align with field boundaries, to avoid shooting cover, to align better with planned development proposals, to reduce impact on farming operations and to minimise impact on land holdings in general.

1.6.8 Additional trenchless crossings at County Wildlife Sites and other sensitive features

38. A decision was taken to include additional trenchless crossing techniques, to remove any direct impacts, at the following key sensitive environmental features:
- Wendling Carr County Wildlife Site;
 - Little Wood County Wildlife Site;
 - Land South of Dillington Carr County Wildlife Site;
 - Kerdiston proposed County Wildlife Site;
 - Marriott's Way County Wildlife Site/Public Right of Way (PROW);
 - Paston Way and Knapton Cutting County Wildlife Site;
 - Norfolk Coast Path;
 - Wendling Carr; and
 - Witton Hall Plantation along Old Hall Road.

1.6.9 Avoiding the need for a “cable bridge” where the onshore cable corridor crosses the North Walsham & Dilham Canal

39. Consultation with Anglian Water and the Environment Agency, through the EPP over a long period, helped to identify the scope of assessments required and subsequently determined that the results of those assessments, site investigations and engineering design enabled a positive conclusion that a drilled solution can be implemented without significant risk to water quality and the chalk aquifer in the

‘Source Protection Zone’. As a result, the Applicant has avoided the need for a cable bridge, thus avoiding landscape and visual impacts.

1.6.10 Decision to adopt HVDC transmission technology

40. Local statutory, non-statutory and community stakeholders raised a number of reasons for the Project to make a commitment to the deployment of HVDC transmission technology. Originally, the Applicant planned to make a decision on a transmission solution (High Voltage Alternating Current (HVAC) or HVDC) post consent as part of the Project procurement process. Taking the decision later would have allowed the Applicant to assess the readiness and capacity of the supply chain to supply the appropriate technology. However, consultation highlighted how strongly stakeholders in Norfolk prioritise environmental and social factors and were opposed to the landscape and visual impacts associated with HVAC technology. Accordingly the Applicant proactively brought forward strategic supply chain discussions and chose to engage the supply chain early in order to ensure technical, commercial, consenting, and feasibility requirements could be better understood. As a result, the Applicant has been able to commit to adopting HVDC transmission technology, which minimises environmental impacts through the following design considerations:

- HVDC requires fewer cables than the HVAC solution for offshore and onshore cables;
- During the cable installation phase for offshore there is less pre-sweep dredging, cable protection and fewer crossings required;
- Under Scenario 2, during the duct installation phase onshore, use of HVDC reduces the cable route working width to 35m;
- The width of permanent cable easement onshore is reduced to 20m;
- Removes the requirement for a CRS;
- Reduces the maximum duration of the cable pull operation(s) from three years down to two years;
- Reduces the total number of jointing bays onshore for Norfolk Boreas from 450 to 150; and
- Reduces the number of drills needed at trenchless crossings (including landfall). In response to concerns raised during the Norfolk Boreas statutory consultation over a possibility the Project may revert back to a more traditional HVAC transmission system, the Applicant reiterates the DCO application is for a project with an HVDC transmission system (see Chapter 25 of the Consultation Report).

1.6.11 Siting the onshore project substation away from as many homes as possible, while still within a practicable distance from the existing 400kV National Grid substation

41. The Applicant accepted National Grid's connection offer at Necton, and then followed the required EIA process to determine an appropriate site for the onshore project substation, with due regard to community and statutory and non-statutory stakeholder views.
42. Initially, local feedback raised concerns relating to the proximity to homes of the proposed substation infrastructure for Norfolk Boreas and Norfolk Vanguard. Landscape and visual impacts and noise levels during operation were cited as concerns. Consultees expressed differing opinions, for instance: some indicated that there were merits to keeping electrical infrastructure close to the existing NGET infrastructure, while others suggested siting the onshore project substation to the east, away from homes and so that existing woodland could help screen the views of the onshore project substation. A workshop and additional drop-in event was convened (Phase IIb) to help residents and interested parties understand the range of constraints and opportunities pertinent to the EIA process (see Chapter 14 of the Consultation Report). The feedback from local people was written-up into a report, and fed into the final project substation site selection and embedded mitigation, including planting schemes. Under Scenario 2, the Applicant determined the National Grid extension works would be located to the East of the existing National Grid substation, in order to maximise the distance of infrastructure from homes. Following PEIR, which included a "search area" within which the onshore project substation would be located under Scenario 2, a decision was made to define a location for the substation. Following further appraisal and consultation with landowners the onshore project substation was located at the eastern boundary of the search area.

1.6.12 Commitment to planting in key areas as early as possible

43. The siting of the onshore project substation and National Grid extension has been undertaken carefully in order to maximise the embedded mitigation. The location of these elements has good potential for the establishment of screen planting and other measures to mitigate the impacts of the development, including making effective use of topographic undulations, existing mature woodland and hedgerows, by retaining these and using them as natural screens. To help reduce the visual impact, mitigation woodland, hedgerow and grassland planting is proposed in key areas and the Applicant is committed to doing this as early as possible. The Applicant will also continue to work with local residents, their elected representatives, landowners and other relevant stakeholders to consider appropriate planting schemes. In relation to the onshore project substation and the converter halls, the

Applicant will explore options like colouring and cladding to help mitigate visual impacts further.

1.6.13 Dedicated works access to keep construction and operation traffic out of Necton and Ivy Todd

44. Consultees living in and around Necton also expressed concerns about substation construction works, notably relating to traffic and access, light pollution and noise. The Applicant provided information (e.g. in newsletters) about how these concerns will be addressed, for example providing information on construction timings and methodology. In order to reduce the impact of construction traffic on Necton, works to undertake the National Grid substation extension will gain access via the existing junction off the A47 with an appropriate traffic management scheme in place. For access to the onshore project substation there will be a new access at Spicer's Corner, with a filter lane, in order to reduce traffic impacts.

1.6.14 Removal of 'secondary mobilisation areas'

45. The Applicant has removed 'secondary mobilisation areas' (temporary works areas along the onshore cable route) from the proposed scheme.

1.6.15 Management of the potential negative impacts of piling activity within the Norfolk Boreas site on harbour porpoise, a feature of the southern north sea SAC, through the production of a "site integrity plan"

46. This was explored and agreed through the EPP and an in principle version of this plan has been submitted as part of this application (document reference 8.17).

1.6.16 Construction traffic and impacts will be managed in agreement with Norfolk County Council's highways authority

47. In response to concerns raised about traffic impacts during the Norfolk Boreas statutory consultation, the Applicant will ensure construction traffic and impacts are addressed through the Traffic Management Plan prior to works beginning. An Outline Construction Traffic Management Plan, Outline Code of Construction Plan, Outline Access Management Plan and Outline Travel Plan will be submitted with the Applicant's DCO. The Applicant will also liaise with Ørsted regarding works and potential cumulative impacts associated with the proposed cable crossing of Hornsea Project Three and the Applicant's export cables, near Reepham. Enhanced understanding of potential cumulative impacts and local concerns, gained during Norfolk Vanguard examination proceedings, are influencing the plans.

1.6.17 Design envelope reductions

48. In accordance with a general preference expressed by stakeholders, certain design options have been refined. The minimum capacity of wind turbine generators the Project will deploy has increased from 7MW to 10MW (so maximum number of Wind Turbine Generators (WTGs) decreased from 257 to 180). The Project is no longer considering floating foundations (tension-leg structure).

1.6.18 Developing informed supply chain and education and skills strategies

49. In order to maximise opportunities for local and regional benefits, the Applicant is engaging early with the local supply chain in order to encourage local participation, and readiness for the contracts that will be awarded for construction of the 60km cable corridor and onshore infrastructure. The Applicant is in discussion with Peel Ports (Great Yarmouth) with a view to establishing its operations and maintenance base at Great Yarmouth. A Memorandum of Understanding (MoU) has been signed between the parties to facilitate the dialogue which it is anticipated will be positively concluded soon. This would result in at least 150 jobs being based in Great Yarmouth for the duration of the lifetime of Norfolk Boreas and Norfolk Vanguard. The Applicant is contributing to local skills development programmes and is working with local schools, colleges and the University of East Anglia (UEA) on successful pilot projects (see Chapter 19 of the Consultation Report). Building on preliminary work, the Applicant will develop a skills and employability strategy in consultation with NCC, the LPAs and New Anglia Local Economic Partnership (NALEP); the Applicant has committed to including the requirement for a skills and employment within the draft DCO.

1.6.19 Ensuring consultation is meaningful, accessible, and open to all

50. To enable all who might have an interest in the Project to access relevant information, the Applicant has used a wide range of channels and participation has been supported by a range of materials to encourage informed responses and feedback. Feedback is considered appropriately during decision-making processes. Examples of how the applicant has responded to feedback about the consultation process are included in relation to all phases of informal and formal consultation. The Applicant has responded to concerns raised about the consultation process through regular adaptations and enhancements to the consultation undertaken. An example is the way in which the Applicant has developed increasingly sophisticated visual materials, to help consultees understand what project elements would “look like”. The Applicant developed enhanced 3D models to help show local residents “their view” and new photomontages which more closely resemble “natural-looking” fields of view.

51. The Applicant will continue to provide Project updates to show how the feedback received is considered appropriately.
52. Following feedback to Statutory Consultation the Applicant recognises the importance of maintaining two-way dialogue during construction. The Applicant will explore the benefits of convening local liaison committees with appropriate scopes and (geographic) coverage to ensure local representatives, including Parish Councils are appropriately briefed and can feed into work plans.

1.7 Conclusion

53. The Project's joined-up approach to engagement and consultation has encouraged and enabled s47, s42 and s48 stakeholders to provide evidence based feedback, iteratively during the Project's and its sister project, Norfolk Vanguard's development. This has reduced duplication of effort on the part of stakeholders as far as possible, and ensured all relevant feedback is given due regard in relation to both projects as appropriate.
54. The Applicant has fulfilled its statutory duty across all aspects to provide meaningful consultation and to ensure that issues identified and raised by the local community, landowners and those with an interest in the application site, as well as local authorities and prescribed consultees, have been considered and addressed at an early stage in the Project's development. See Chapter 31 of the Consultation Report for a full statement of compliance.