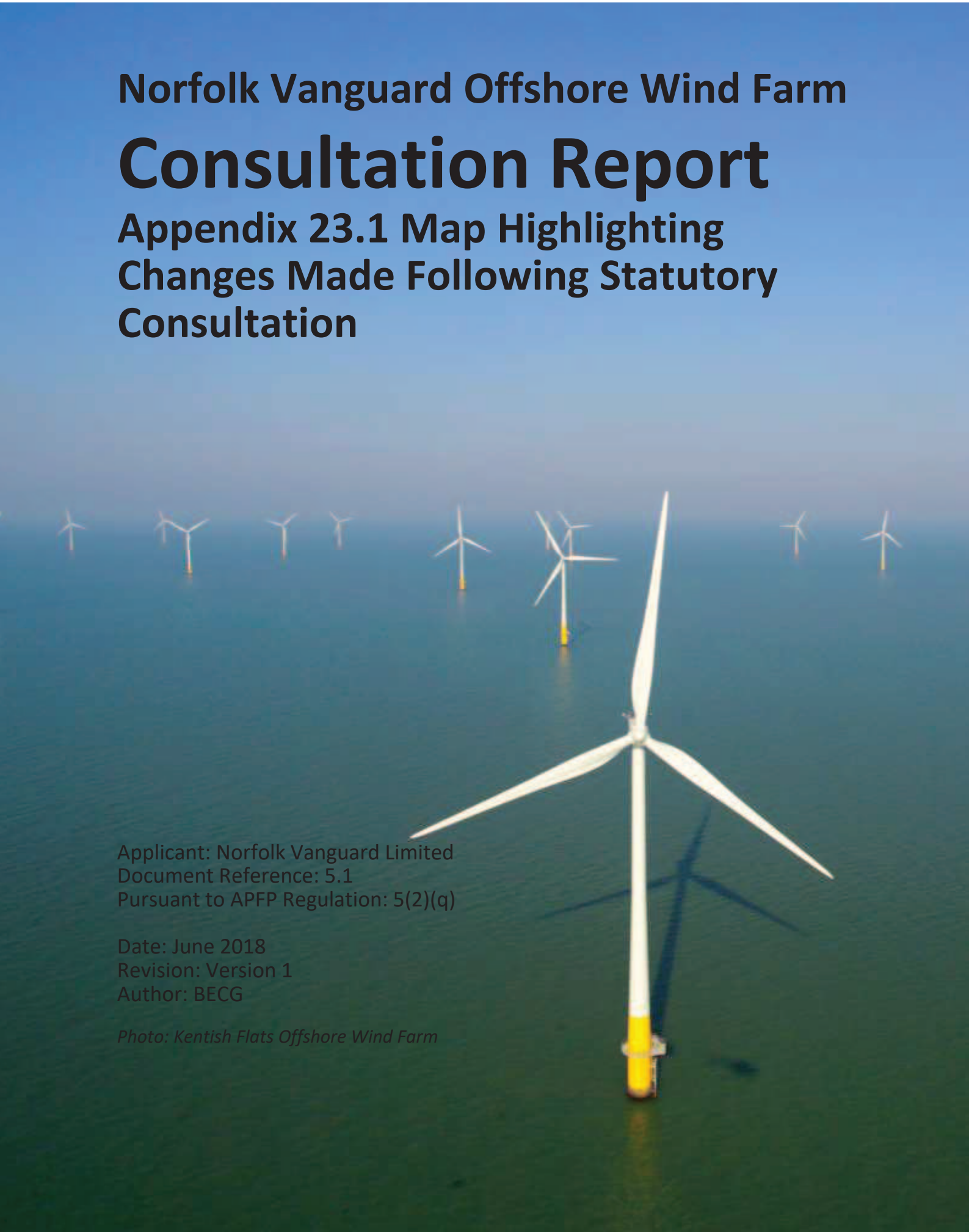
VATTENFALL

Norfolk Vanguard Offshore Wind Farm

Consultation Report

Appendix 23.1 Map Highlighting Changes Made Following Statutory Consultation



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

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Key Feedback Themes

Key themes raised during our Statutory Consultation (07/11/17 - 11/12/17) include:

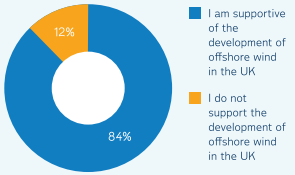
- HVDC or HVAC transmission; many expressed a strong preference for HVDC
- Concerns about visual, environmental and amenity impacts of onshore infrastructure (such as Project Substation and Cable Relay Stations)
- Issues related to impacts at landfall (such as concern over coastal processes, erosion and landfall siting)
- Construction traffic impacts (including extent of disruption during construction phase)

Responses also covered topics ranging from the consultation process itself to supply chain, employment, skills, education and training.

Support for offshore wind

A clear message came from very many responding to our consultation: the UK needs affordable, secure low-carbon power, but it must be developed sensitively, balancing local, national, and global climate-friendly interests.

Please tell us your views on offshore wind and its role in the UK's energy mix?



What's new?

Our revised Norfolk Vanguard proposals, take into account:

- Broad-ranging and in-depth feedback from a wide variety of local, regional and national communities and stakeholders
- On-going discussions with expert topic groups and with landowners and occupiers
- On-going environmental assessments, which help us identify and avoid sensitive features, including early geophysical surveys to help detect buried archaeology
- Technical design revisions following a strategic review of technology development in electrical infrastructure.

Vattenfall have taken a strategic decision to deliver projects adopting HVDC transmission technology where appropriate.

Since the inception of the Norfolk Vanguard project we have considered both HVAC and HVDC transmission options. Technical developments allow us to make this important decision, aligning with our climate smart industry leadership. We believe that this decision is the right one for these projects and signals to the international supply chain that we will be in the market for HVDC technology in the early 2020s.

Important features of our revised proposals to note are:

A Offshore – no significant changes in the windfarm area – we continue to work on design principles that prioritise fewer, taller, more efficient, modern turbines. **An HVDC system means fewer offshore cables, further minimising overall impacts.**

B Onshore – a narrower 45m cable corridor will accommodate buried transmission cables for both Norfolk Vanguard and Norfolk Boreas. An HVDC transmission system allows us to use fewer onshore cables than a comparable HVAC system, thereby minimising overall impacts and maximising flexibility to micro-site around sensitive features. We have undertaken extensive geophysical surveys early. This has guided our revised cable corridor, including for example the avoidance of heritage sites near St Mary's Kerdiston, and indications of a medieval moat north of Necton.

C Fewer transmission cables means the **landfall work will be completed more quickly**.

D We have opted for long HDD at landfall. This means no work is required on the beach. The location of the temporary working compound (60m x50m) will be agreed with local stakeholders within the new search zone, informed by geophysical and geotechnical surveys. There will be no requirement for construction vehicles to use public car parks in Happisburgh.

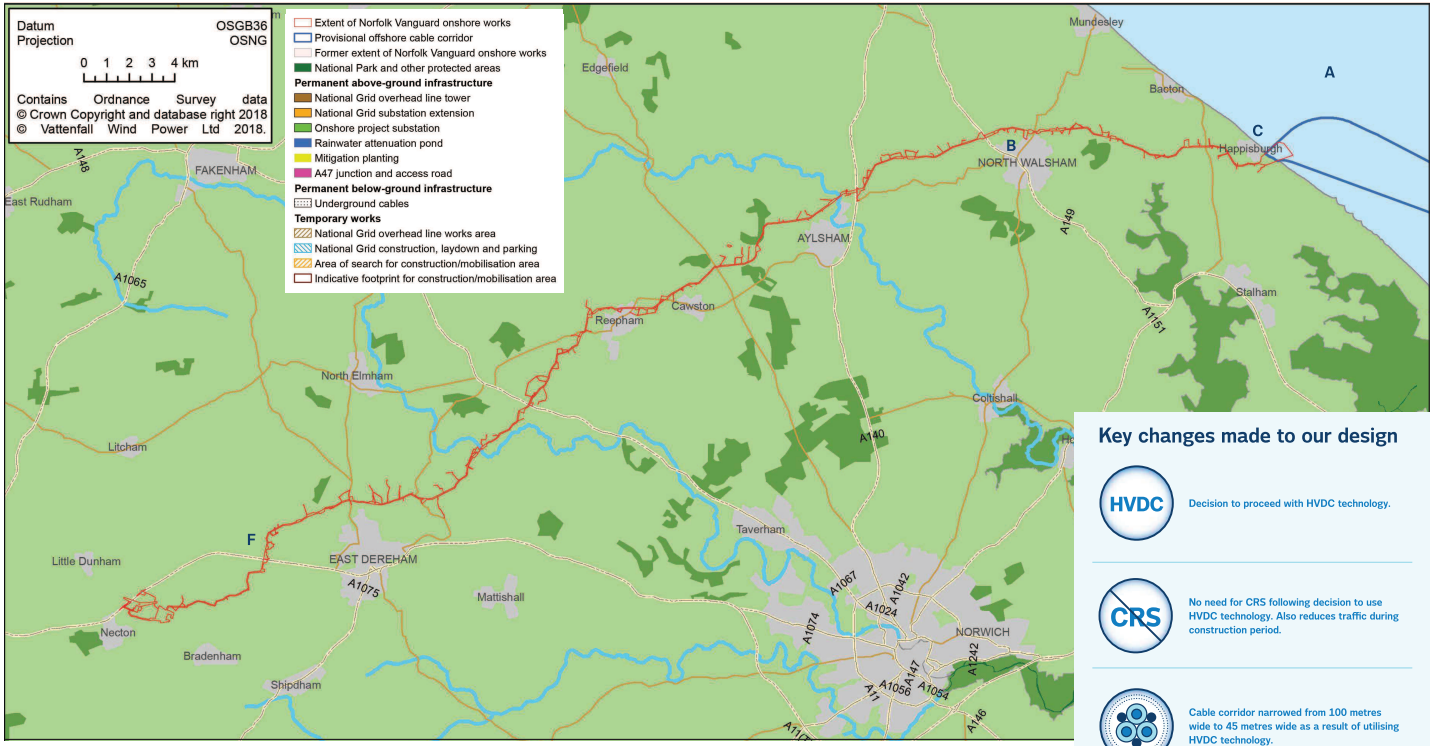
E No Cable Relay Station is required using HVDC transmission technology.

F Additional trenchless crossings (including HDD) will be deployed to avoid impact on all County Wildlife Sites. Already we had committed to trenchless crossings of habitats and features protected by national and international designations, now we shall avoid impacts to features including Paston Way & Knapton Cutting, Marriotts Way (twice) and Wendling Carr.

Illustrations of the HVDC onshore project substation near Necton have been shown during the consultation. Most of the electrical assets are enclosed within a building (the converter hall). Electrical assets outside the converter hall can be covered by close fitting noise enclosures. **These measures provide significant noise mitigation.**

G Mitigation planting around the substation will be enhanced, building on expert and local suggestions provided in response to our consultation. Where possible we will utilise layered planting schemes and mixed native-trees of different heights for natural-looking screening.

H Works to undertake the National Grid substation extension will gain access via the existing junction off the A47 with a 'no right turn' 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. **These measures mean all construction traffic is kept away from Necton and Ivy Todd**.



Norfolk Vanguard Onshore Development
The elements shown in this plan will be those included in the DCO submitted to the Planning Inspectorate for Norfolk Vanguard Offshore Wind Farm.

For more detail, please see our updated online interactive map: http://bit.ly/2C6JTfr

Key changes made to our design

HVDC – Decision to proceed with HVDC technology.

CRS – No need for CRS following decision to use HVDC technology. Also reduces traffic during construction period.

Cable corridor narrowed from 100 metres wide to 45 metres wide as a result of utilising HVDC technology.

Construction timeframes and construction traffic and transport reviewed - new accesses to our cable corridor and onshore works to help keep impacts to a minimum.

New trenchless crossings added to the route to minimise impact on sensitive areas along the cable route and reduce disruption.

Mobilisation areas are required to store equipment and provide welfare facilities. They would be located adjacent to the onshore cable route, accessible from local highways network suitable for the delivery of cable drums and other heavy / oversized equipment.