Norfolk Boreas Development Consent Order

National Grid's response to ExA's Written Questions (ExQ1) of the 19th November 2019

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ExA's Written Questions and requests for Information ExQ1 – Issued 19th November 2019

Response on behalf of National Grid

Question No.	Question	Response
5.4.2	**Electricity into local transmission** The Applicant's response to Norfolk County Council's RR [RR-037] request to work with National Grid to feed electricity into local transmission [AS-024, Table 28, No. 2] states that there are no planning or regulatory mechanisms through which the Applicant could identify direct 'infeeds' into the regional distribution network in Norfolk. Advise whether there is precedent; whether such an arrangement could be secured in this dDCO	*National Grid is not aware of any precedent whereby an electricity distribution network operator like UK Power Networks is directly connected to and takes supplies from Offshore Transmission Owner cables bringing power ashore from an offshore wind farm. In the UK, separate Offshore Transmission Owners (OFTOs), which are neither the windfarm developers nor the onshore Transmission Owners, take responsibility for the OFTO assets under long term licences. The question of whether a distribution network operator could potentially connect to and take supplies from an OFTO, is a regulatory and licence question for the OFTO, the electricity distribution network operator and Ofgem. It is not something that National Grid can answer.*

7.0.2	**Substation location** IPs raise concerns in their RRs and at the Open Floor Hearing [EV4-001] in relation to the proposed expansion of Necton substation, questioning why Walpole substation is not considered to be the preferred location. The Applicant has set out its consideration of alternatives in the application documents [AS-024]. Provide further information in relation to these matters.	*The identification of an efficient co-ordinated and economical onshore connection location is considered through the Connection Infrastructure Options Note (CION) process with input from National Grid Electricity System Operator (National Grid ESO) on system operational and power flow considerations, National Grid Electricity Transmission (NGET) on the national electricity transmission network works potentially required, and the offshore wind farm developer for the offshore and onshore OFTO cable routeing considerations. The process looks at technical, commercial, regulatory, environmental, planning and deliverability aspects to identify the most preferred connection to the consumer. The Electricity Act 1989 requires National Grid, when formulating proposals, to be efficient, coordinated and economic whilst also having regard to the environment. When the development being connected is offshore, both the offshore and onshore aspects need to be considered in that evaluation. Walpole was considered in the longlist of potential connection points considered at the initial stages of the CION process however was discounted in early shortlisting due to the very long connection route which was deemed economically and technically unviable due to the length of subsea and onshore cabling required including a potential route through the heavily environmentally*

		designated Wash being required
7.0.3	**Necton substation and proposed extensions**	
	1. Confirm the current site boundary and function of the existing Necton sub-station.	*The current site boundary of the Necton National Grid substation is as illustrated in the Applicant's Figure 5.5 [APP-269] and Figure 5.6 [APP-270]. The function of the existing Necton National Grid substation is to facilitate connection of the Dudgeon offshore windfarm to the National Electricity Transmission System (NETS).*
	2. Outline all proposed extensions to the Necton sub-station, and all proposed additional project substations on the same site. Specify the purpose of each extension and additional project substations.	*An extension of the Necton National Grid substation to the west is proposed to facilitate the connection of Norfolk Vanguard or Norfolk Boreas (if Norfolk Vanguard does not proceed) to the NETS and would include overhead line modifications to provide further connectivity to the Necton National Grid substation to meet statutory security of supply requirements. An extension of the Necton National Grid substation to the east is proposed to facilitate the connection of Norfolk Boreas (if Norfolk Vanguard does proceed) to the NETS. No additional project substations are currently proposed at the Necton National Grid substation*
	3. Confirm if the parameters (height, boundary) assessed in the ES Chapter 29 Landscape and Visual Impact Assessment [APP-242], for the substations extensions and additional project substations	*The maximum height of 15m and boundary of 135m x 150m for an eastern extension (Norfolk Vanguard has proceeded) or 200m x 150m for a western extension (Norfolk Vanguard has not proceeded)*

	represent the worst-case Scenario.	*represent the worst-case scenario Rochdale Envelope for the Necton National Grid substation extensions. There are no additional project substations currently proposed at the Necton National Grid substation.*
7.0.4	**Offshore Ring Main** The Applicant has responded to matters raised in relation to an Offshore Ring Main (ORM) [AS-024, Table 28, No. 3]. Do IPs wish to comment further?	*With the Crown Estate's announcement of Round 4 seabed leasing and the Government's commitment to achieving Net Zero by 2050, we are acutely aware that the future growth of offshore wind will require innovative and potential offshore solutions to ensure the impact of network connections is minimised. Whilst Round 3 wind farms including Norfolk Boreas, are proceeding with radial connections in line with the findings of studies published in 2015, we are continuing to work with our customers, the Crown Estate, Ofgem and the Government to find the best solution for delivering this vital infrastructure that will be needed for Round 4 and future offshore wind. Connecting several future offshore wind farms via a ring main reducing the number of onshore connections is one possible solution that we are exploring. That though would require a policy framework which doesn't exist currently, to facilitate anticipatory investment in advance of confirmed development.*

13.4.2	**Effects of electromagnetic fields (EMF)** 1. In light of the representations made at the OFH on 13 November 2018 [EV4-004], can the Applicant confirm that the EMF exposure of the Proposed Development, especially at the location where the cable route crosses with the underground cables of Hornsea Project Three, is within the limits prescribed by the NPS EN suite and all other relevant UK regulations? 2. National Grid, to confirm the Applicant's assumptions and assessment regarding EMF in ES Chapter 27 Human Heath [APP-240].	*National Grid agrees with the assumptions and assessment regarding EMF in the Applicant's submission and conducted analysis on behalf of the Applicant to support the assessment.*
9.3.8	**National Grid planting easements** The 1:4,000 landscape mitigation plans [APP-494] and [APP-505] seem to indicate planting located in what might be tree exclusion zones required for the 400kV overhead line. 2. Seek clarification from National Grid on its tree planting exclusion zones and vegetation height restrictions.	*Where tree planting is proposed close to overhead lines it is necessary to ensure safe electrical clearances are maintained. The clearance requirements between trees and 400kV overhead line conductors are explained on pages 24 and 26 of National Grid's Development Near Overhead Lines document. Key considerations are:* • *whether a tree can support a ladder or is capable of being climbed, in which case the closest part of the tree canopy must be no closer than 5.3 metres to the conductors;*

		• *how high a tree might grow (which depends on the species and growth rates) and the falling radius that a tree canopy creates if the tree were to fall toward the line – needing to maintain 3.1 metres minimum separation to the electrical conductors of the overhead line.*