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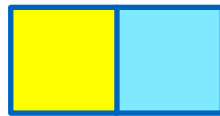
East Anglia ONE North and East Anglia TWO Offshore Windfarms

Applicants' Comments on National Grid Ventures' Deadline 11 Submissions

Applicant: East Anglia TWO and East Anglia ONE North Limited
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Applicable to East Anglia ONE North and East Anglia TWO



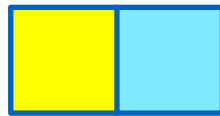
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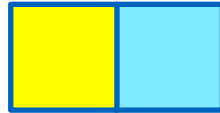
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Glossary of Acronyms

CIA	Cumulative Impact Assessment
DCO	Development Consent Order
EIA	Environmental Impact Assessment
NGV	National Grid Ventures



Glossary of Terminology

Applicant	East Anglia TWO Limited / East Anglia ONE North Limited
East Anglia ONE North project	The proposed project consisting of up to 67 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
East Anglia TWO project	The proposed project consisting of up to 75 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.



1 Introduction

1. This document presents the Applicants' comments on National Grid Ventures' (NGV's) Deadline 11 submissions as follows.
 - NGV's Deadline 11 Submission – Responses to ExAs Further Written Questions (ExQ3) (REP11-119)
2. This document is applicable to both the East Anglia TWO and East Anglia ONE North DCO applications, and therefore is endorsed with the yellow and blue icon used to identify materially identical documentation in accordance with the Examining Authority's procedural decisions on document management of 23rd December 2019 (PD-004). Whilst this document has been submitted to both Examinations, if it is read for one project submission there is no need to read it for the other project submission.



2 Comments on National Grid Ventures' Deadline 11 Submissions

2.1 Applicants' Comments on NGV's Deadline 11 Submission - [REP11-119]

ID	ExA's Question	NGV's Comment	Applicants' Comments
3.14 Other Projects and Proposals			
1	<p>3.14.1 Extension of National Grid Substation Appraisal</p> <p>The ExAs note that, in addition to substation extension bays, the Nautilus and EuroLink interconnector projects would require a converter station "in proximity" to any substation and that this equates to some 5km radius (maximum) from the NGET substation for size and efficiency reasons [REP9-062]</p> <p>a) Is it most efficient to provide a converter station as close as possible to the substation extension bays?</p> <p>b) A 5km radius equates to roughly 3.1miles from the proposed Friston substations. Outline the process by which the proposed converter stations sites will be chosen. Would the presence of a permitted NGET substation at Friston weigh in favour of a site being chosen adjacent to the same site?</p> <p>Appendix 1 to [REP9-062] contains a Nautilus Project Update document (April 2021). This document contains details of "The vision for</p>	<p>a) The most efficient technical solution is to locate the converter station as close to the substation extension bays as possible. This minimises the length of the HVAC cable circuits needed to connect the converter station to the substation.</p> <p>Longer HVAC cable routes result in reactive power transmission losses which require extra equipment in the converter station, such as shunt reactors, to compensate these losses. A 5 km radius reduces the likelihood of needing this equipment.</p> <p>HVAC cable routes typically require a larger working width than that of HVDC cables. A longer HVAC cable route between the converter station and the NGET substation therefore has the potential to impact a larger area. Bundled underground cables will need to be installed between the converter station and the NGET substation. Minimising the distance between the infrastructure helps reduce disruption and the land take required for cable burial.</p>	<p>The Applicants note that the NGV projects remain in the feasibility stage and have not yet entered an Environmental Impact Assessment (EIA) scoping stage. As stated by National Grid Electricity Transmission (NGET), the National Grid substation consented by the Projects is designed to facilitate the Projects only. It is therefore incorrect and inappropriate to suggest that there is available capacity at the Projects' National Grid substation. NGV have already confirmed that should their project(s) connect at the National Grid substation consented by the Projects, that extensions to the National Grid substation would be required.</p> <p>With reference to NGV's Deadline 11 submission (REP11-119) and as confirmed during a meeting with NGV on 25 May 2021, NGV does not have the information that is required by the Applicant to undertake a Cumulative Impact Assessment (CIA) – specifically information pertaining to the landfall, cable corridor, converter station or a confirmed grid location. This reflects NGV's early stage of project development, which are not scheduled to enter EIA scoping until 2022.</p>



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	<p>MultiPurpose Interconnectors" which it is stated will help to reduce impacts on coastal communities with fewer individual connections and less construction works needed.</p> <p>c) While reducing the number of individual connections could reduce overall impacts on coastal communities, could conversely this also lead to larger impacts on the area chosen for the single, presumably larger, connection?</p> <p>d) Is Friston being considered as a Multi-Purpose Interconnector?</p>	<p>Appendix A sets out examples of HVAC cable route lengths between converter stations and NGET substation connections for other NGV Interconnector projects.</p> <p>b) NGV intend to hold a public consultation for Nautilus in late Summer 2021 which will include information on the siting and routeing process. Based on the assumption of a connection to the proposed Friston substation (please refer to NGV's Deadline 3 submission dated 15th December 2020 for further detail on the connection agreements for both Nautilus and EuroLink) NGV have identified an initial 5km search area for possible converter station site options for Nautilus; the process is iterative. Environmental, socio-economic and technical considerations are informing the process. Feasibility work is also being undertaken for the proposed EuroLink project although this is not currently as advanced.</p> <p>Co-location of a converter station and substation is considered to have an advantage because it reduces / avoids transmission losses. Furthermore, the aggregation of infrastructure can minimise intrusion in the landscape. However, a search area of 5km allows for consideration of identified options to be appraised against</p>	



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		<p>criteria to inform feasibility. The presence of a permitted NGET substation at Friston does not necessarily mean an adjacent site will be the most appropriate for a converter station when balancing environmental, socio-economic and technical objectives.</p> <p>c) There is a demand for coastal connections given the UK Government target to deliver 40GW of power from offshore wind by 2030 as set out in the Energy White paper (December 2020) and the Ten Point Plan for a Green Industrial Revolution (November 2020). It is therefore inevitable that any consented NGET substation asset at this location would attract interest until capacity of the NGET substation is reached. Reviews such as the Offshore Transmission Network Review (ONTR) recognise this position and the need for more co-ordinated solutions to come forward. Instead of dozens of individual wind farms connecting one by one to the shore, MPIs would allow clusters of wind farms to connect all in one go; reducing the impact on the marine and onshore environment by reducing and consolidating the number of cable runs and onshore substations when compared to the existing individual developer led approach. MPIs would therefore provide a more co-ordinated and cheaper solution for consumers and</p>	



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		<p>reducing impacts on local communities. In the case of the proposed Friston substation, substation extension bays would be required to accommodate new connections, including an extension bay each for the Nautilus project and EuroLink project. Extension bays would increase the overall footprint of the NGET substation.</p> <p>d) Both the Nautilus project and EuroLink project are intended to be Multi-Purpose Interconnectors (MPIs), an evolution from the original intention of point to point interconnectors. This decision was made in response to a need for a more co-ordinated approach, which was called for by stakeholders.</p> <p>A MPI would comprise an offshore converter station with HVDC cables running to an onshore converter station (in each country). HVAC cables would then run between the onshore converter station to the point of connection. The MPI would connect into the National Transmission System via a substation. These components are shown in the MPI diagram at Appendix 2 of NGV's Deadline 9 response. As detailed in NGV's Deadline 3 response, NGV have undertaken feasibility work based on the assumption that the proposed NGET substation connection for</p>	



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		both the proposed Nautilus and EuroLink Multi-Purpose Interconnector projects will be at Friston.																												
	<p>Appendix A</p> <p>Examples of HVAC Cable Route Lengths between Converter Stations and NGET substation connections for NGV Interconnector Projects</p> <table border="1"> <thead> <tr> <th>NGV Project</th> <th>Status</th> <th>HVAC Route Length (Converter to NGET)</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>IFA</td> <td>Operational, 1986</td> <td>N/A</td> <td>Co-located NGET substation and converter station site.</td> </tr> <tr> <td>BritNed</td> <td>Operational, 2011</td> <td><0.5km</td> <td>Short route between NGET substation and converter station.</td> </tr> <tr> <td>Nemo</td> <td>Operational, 2019</td> <td><0.5km</td> <td>Converter station site located adjacent to NGET substation.</td> </tr> <tr> <td>IFA2</td> <td>Operational, 2021</td> <td>Approx. 10km</td> <td>It was not feasible to connect within 5km of the substation, therefore an alternative location was identified in this geography. The longer HVAC link between converter station and substation meant that additional compensating equipment (a shunt reactor) had to be incorporated into the converter station design to compensate for transmission losses.</td> </tr> <tr> <td>NSL</td> <td>Under construction</td> <td>Approx. 600m</td> <td>Converter station and NGET substation in close proximity.</td> </tr> <tr> <td>Viking</td> <td>Under construction</td> <td>Approx. 2.3km</td> <td>Converter station and NGET substation relatively close proximity.</td> </tr> </tbody> </table>	NGV Project	Status	HVAC Route Length (Converter to NGET)	Description	IFA	Operational, 1986	N/A	Co-located NGET substation and converter station site.	BritNed	Operational, 2011	<0.5km	Short route between NGET substation and converter station.	Nemo	Operational, 2019	<0.5km	Converter station site located adjacent to NGET substation.	IFA2	Operational, 2021	Approx. 10km	It was not feasible to connect within 5km of the substation, therefore an alternative location was identified in this geography. The longer HVAC link between converter station and substation meant that additional compensating equipment (a shunt reactor) had to be incorporated into the converter station design to compensate for transmission losses.	NSL	Under construction	Approx. 600m	Converter station and NGET substation in close proximity.	Viking	Under construction	Approx. 2.3km	Converter station and NGET substation relatively close proximity.	n/a
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2	<p>3.14.5 Future Uncertainty</p> <p>Bearing in mind any implications of the Norfolk Vanguard judgement, how would the parties propose the ExAs advise the Secretary of State in relation to the uncertainty about possible future development at Friston and in the wider area created by the precedent case, in the event that either one or both projects is approved, and by the clear evidence submitted to the examinations that (a) the potential to extend the proposed</p>	<p>NGV have made submissions (at Deadlines 3, 4, 9 and 11) regarding the proposed Nautilus project and EuroLink project. A SoCG has also been agreed with the Applicant.</p> <p>As set out in the agreed SoCG with the Applicant, both the Applicants and NGV recognise there are benefits in ensuring that the design of the East Anglia TWO project and East Anglia ONE North project does not unnecessarily limit or restrict the opportunity for the Nautilus project and EuroLink project</p>	<p>The Applicants note that any interaction of the NGV projects with the Projects must ensure no detriment to the operation of the Projects, and any interaction with the Projects landscaping or surface water drainage will have to be fully assessed, controlled and mitigated as part of NGV's consent application.</p>																											



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	National Grid substation has been demonstrated and (b) the proposed Eurolink and Nautilus inter-connectors are exploring a landfall location between Thorpeness and Sizewell and the possibility of making a National Grid connection in the Leiston area, via onshore substations located within 5k of a National Grid substation?	to connect to National Transmission System (NTS) at the National Grid substation. Any future application/s for Development Consent by NGV would assess cumulative impacts in the context of EA1N and EA2 and other relevant developments.	