

**From:** [REDACTED]  
**To:** [SADEP](#)  
**Subject:** Sheringham Shoal and Dudgeon Extensions Offshore Wind Farm: Response to Second Written Questions: Q2.2.2  
**Date:** 02 May 2023 21:38:50  
**Attachments:** [A.6 WQ2.2.2.1 National Grid Existing Onshore Substation Locations.pdf](#)  
[NGESO - Sheringham Dudgeon - Written Representation to Second Questions - 2 May 2023.docx](#)

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Dear Sir/Madam, the second written question 2.2.2 referred to above asked for a jointly prepared response to the question from the Applicant and NGESO.

The response has been submitted by the Applicant as part of its submission on the other second written questions directed to it (The Applicant's Responses to the Examining Authority's Second Written Questions [document reference 16.2]) but is replicated by NGESO for completeness

Regards  
Angie

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**2 MAY 2023**

**THE INFRASTRUCTURE PLANNING (EXAMINATIONS PROCEDURE) RULES 2010**

**THE SHERINGHAM SHOAL AND DUDGEON EXTENSIONS OFFSHORE WINDFARM  
ORDER**

**WRITTEN REPRESENTATION ON BEHALF OF NATIONAL GRID ELECTRICITY  
SYSTEM OPERATOR LIMITED**

**WRITTEN REPRESENTATION ON BEHALF OF NATIONAL GRID ELECTRICITY  
SYSTEM OPERATOR LIMITED**

1           **RESPONSE TO SECOND WRITTEN QUESTIONS: Q2.2.2**

1.1       As requested by the Examining Authority a response to this question has been jointly prepared by the Applicant and National Grid Electricity System Operator Limited ("NGESO").

1.2       This response has been submitted by the Applicant as part of its submission on the other second written questions directed to the Applicant (The Applicant's Responses to the Examining Authority's Second Written Questions [document reference 16.2]) but for completeness is also provided again through this separate submission by NGESO.

**Joint Response by the Applicant and NGENSO to the Examining Authority's  
Second Written Questions: Q2.2.2**

Q2.2.2 Selection of Substation Site			
Q2.2.2.1	Applicant National Grid Electricity System Operator Limited All Parties	<p><b>Grid Connection</b></p> <p>a) Interested Parties and other persons, provide any additional comments relating to Applicant's approach to grid connection at Norwich Main in light of the letter written by Minister of State for Energy and Climate, dated 16 January 2023 [REP1-038, Pages 471-473].</p> <p>Applicant and NG ESO, the ExA considers that adequate response have not been provided by either party to parts of WQ1.2.2.1 [REP1-036] [REP1-188], and at ISH4 [EV-057] [EV061]. For that reason, some questions here have been repeated. The ExA requests both parties to submit a jointly prepared, comprehensive and complete responses to the following questions as a separate submission, making reference to the CION guidance as relevant. You may use the following sub-headings to structure your joint response.</p> <p><i>Decision making framework</i></p> <p>b) Notwithstanding your response [REP1-036, Q1.9.1.5], confirm and support with evidence if possible, that you already have or not a 'connection contract in place' with for the Proposed Development at Norwich Main. Respond with reference to the letter written by Minister of State for Energy and Climate, dated 16 January</p>	<p><b>As requested, the Applicant and NGENSO has jointly prepared the following question responses:</b></p> <p>a) n/a</p> <p>b) As set out in paragraph 7 of the 8.1 Cable Statement [APP-283] submitted with the DCO application, <i>"the Grid Connection Agreement that has been secured by the Applicant is for a connection located at the Norwich Main substation in Norfolk, ..."</i>.</p> <p>For completeness, and as set out in Table 20, ID16 of The Applicant's Comments on Written Representations [REP2-017] the Applicant has since made a Modification Application (ModApp) to National Grid for an increase in transmission entry capacity such that the grid connection is available and secured should there be any future opportunity to amend the capacity in the Agreement for Lease (AFL) prior to construction of SEP and DEP. A Grid Connection offer was made by National Grid in November 2022 for the increased transmission entry capacity at the Norwich Main substation. The Applicant reiterates that if the opportunity arises to realise a greater capacity, this will not require any of the existing parameters for SEP and DEP to increase.</p> <p>The Grid Connection Agreement with National Grid has a connection date of 2027 for the 719MW existing capacity (stage 1). The ModApp offered and now signed allows for the increase in transmission entry capacity at a connection date of 2031 (stage 2).</p> <p>The Applicant therefore confirms that it has a 'connection contract' (Grid Connection Agreement) in place, as can be evidenced on the publicly available Transmission Entry Capacity (TEC) register kept by National Grid ESO (NGESO).</p> <p>c) The Applicant has provided a copy of The Connection and Infrastructure Options Note (CION) Process, Guidance Note v4.0 (NGESO, November 2018) (the CION</p>

**Q2.2.2 Selection of Substation Site**

		<p>2023 [REP1-038, Pages 471-473, Paragraph 3].</p> <p>c) Provide the CION guidance referenced at ISH4, and what do you consider to be the status of this guidance in the ExA’s considerations, and its recommendation to the SoS.</p> <p><i>Alternatives considered</i></p> <p>d) Signpost in the Application material or submit information to highlight what alternative grid connections, other than Norwich Main, were offered to the Applicant?</p> <p>e) NG ESO, the ExA notes your brief response regarding Walpole Substation [REP1-188, Q1.2.2.3]. Further information in the context of the above question is requested.</p> <p><i>Selection process and roles</i></p> <p>f) At ISH4, the Applicant explained that while the CION was driven by NG ESO, it was a collaborative process to which the Applicant did contribute. In order to demonstrate compliance with NPS-EN1 (Paragraphs 4.4.1 and 4.4.2), set out the role of the Applicant in particular, and also of NG ESO and any other parties in the consideration of alternatives in the CION.</p> <p><i>Selection criteria and weighting</i></p> <p>g) What criteria did you consider in making the connection offer to the Applicant? Provide a full flow chart with the sequence of steps taken, and the criteria and weighting that</p>	<p>guidance) at B.9 of Appendix B - Supporting documents to the Applicant's Responses to the Examining Authority's Second Written Questions (document reference 16.2.2) submitted by the Applicant at Deadline 3. The process for projects to secure a Grid Connection Agreement is an Ofgem regulated process which sits outside of the consenting process for a proposed development. NGESO as System Operator coordinates inputs from Developers, Transmission Owners (TOs) and NGESO.</p> <p>The Applicant does not consider the CION guidance to be a material consideration in the ExA’s recommendation to the Secretary of State given that the process for NGESO making a grid connection offer to a customer is regulated separately under a different relevant legislative framework to that under which consent is sought (i.e. the Planning Act 2008 and relevant secondary legislation), and for reasons set out in response to part d) below. The CION guidance provides background to the NGESO-led process followed which determined Norwich Main as the grid connection location offered to the Applicant.</p> <p>d) No alternative grid connections were offered to the Applicant. The CION process considered a range of potential options but resulted in only Norwich Main being offered to the Applicant. Therefore, whilst reference is made in the application materials to the grid connection point and the CION process (section 3.6 and 3.10 of 6.1.3 Chapter 3 Site Selection &amp; Assessment of Alternatives of the ES [APP-089], and section 3.1.3.2 of 6.3.3.1 Appendix 3.1 – Onshore Substation Site Selection Report [APP-175]), ‘alternative grid connections’ are not studied within the Environmental Statement as none were under consideration.</p> <p>Paragraphs 2.2.1 of the current draft NPS 5 fully recognises that “ <i>The Applicant does not substantially control the initiating and terminating points of new electricity networks infrastructure. The siting is determined by the location of new generating stations and/or system capacity by the Electricity System Operator.</i> ”</p>
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**Q2.2.2 Selection of Substation Site**

		<p>underpinned key decisions.</p> <p>h) What weight or extent of consideration is given to nature, biodiversity and sites designated for nature conservation when preparing the CION and offer options?</p> <p>Given its distance in-land, what factors made Norwich substation the best option for the grid connection?</p>	<p>NPS policy is clear that alternatives are relevant only in specified circumstances. Policy paragraph 4.4.2 of NPS EN-1 requires that where alternatives have been studied:</p> <p><i>"applicants are obliged to include in their ES, as a matter of fact, information about the main alternatives they have studied. This should include an indication of the main reasons for the applicant's choice, taking into account the environmental, social and economic effects and including, where relevant, technical and commercial feasibility;"</i></p> <p>Similarly, paragraph 2 of Schedule 4 to the EIA Regulations requires that the Environmental Statement must include:</p> <p><i>"2. A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects".</i></p> <p>In the case of both NPS policy and the EIA Regulations, the requirement to consider alternatives applies to those studied by the Applicant where the Applicant has made a selection of a "chosen option" (EIA Regulations) and not to other processes by other national or other organisations in which the Applicant has been consulted.</p> <p>Designated NPS EN-1 policy also clearly limits any need to consider alternatives where it states (in paragraph 4.4.1) that:</p> <p><i>"this NPS does not contain any general requirement to consider alternatives or to establish whether the proposed project represents the best option".</i></p> <p>e) Walpole 400 kV was one of the sites considered during the initial stages of the CION process undertaken in 2018. As per the CION guidance there is a process to "filter down" the potential sites identified to those that will be taken forward for more detailed assessment. Walpole substation did not make the shortlist of sites taken forward after initial consideration, due to a number of issues identified by NGET with that site, which included: Limited space on site, substation considered 'full' for generation, fault level</p>
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Q2.2.2 Selection of Substation Site			
			<p>issues and lack of thermal capacity. It is also the case, as noted in NGENSO's response to the Examining Authority's First Written Question (Q1.2.2.3) [REP1-188], that the seabed routes to Walpole around the Wash were believed to be at capacity with no further available space for more cables. The conclusion was that the Walpole 400 kV was very congested, therefore it was not recommended by the CION parties to be taken forward as a potential option.</p> <p>f) As set out in the CION guidance at B.9 of Appendix B - Supporting documents to the Applicant's Responses to the Examining Authority's Second Written Questions (document reference 16.2.2) submitted by the Applicant at Deadline 3, <i>"the CION requires input from NGENSO as System Operator, TOs and Developers. NGENSO as System Operator coordinates this input."</i> The guidance provides an overview of the process including the roles and responsibilities of each CION party (the parties being the developer, NGENSO and the TOs).</p> <p>As set out in response to d) above, compliance with Paragraphs 4.4.1 and 4.4.2 of NPS EN-1 is not triggered by the location of the grid connection on the basis that:</p> <ul style="list-style-type: none"> <li>• the process for NGENSO making a grid connection offer to a customer is regulated separately under a different relevant legislative framework;</li> <li>• only one connection point, Norwich Main, was offered to the Applicant and therefore no other alternatives have been studied as part of the DCO application; and</li> <li>• the requirements of the EIA Regulations are not applicable to the grid connection location given that no other connection points represent a <i>'reasonable alternative'... 'studied by the developer'</i>.</li> </ul> <p>g) The CION Guidance (B.9 of Appendix B - Supporting documents to the Applicant's Responses to the Examining Authority's Second Written Questions (document reference 16.2.2)) sets out the sequence</p>

**Q2.2.2 Selection of Substation Site**

			<p>of steps and the criteria considered that underpin key decisions. The guidance includes a series of flowcharts representing how the process is undertaken. NGESO and the other Transmission Licensees have a statutory duty under the Electricity Act to develop and maintain an efficient, coordinated and economical transmission system and the CION process was the relevant process undertaken to identify the overall efficient, co-ordinated and economical solution in the context of the connection for SEP and DEP. Under the CION process, as set out in the CION guidance, the onshore TO (in this case NGET) identified connection options which were shared with the Applicant, and the Applicant considered the offshore and onshore connection routes/design associated with these. The options appraisal included consideration of costs and a high-level appraisal of the technical, environmental, planning consent and deliverability issues associated with each of these.</p> <p>These options were reviewed by the CION parties (NGET, NGESO and the Applicant) and the options to be taken forward for detailed assessment and a cost benefit analysis (CBA as described in the CION guidance) identified. As noted in the answer to question (e) above, Walpole was assessed and ruled out for the reasons mentioned at that stage. The CBA outcome was then considered by the CION parties but also taking into account the other issues associated with each option as identified by NGET and the Applicant. As noted in (h) below the preferred connection option was Norwich Main and agreed by all the CION parties despite being the second most economic option under the CBA as it carried less deliverability risk. The CION process, whilst focused on the overall efficient, co-ordinated and economical solution, does (and has in the case of the grid connection for SEP and DEP) attribute weight to other considerations including environmental and consent risk matters.</p> <p>h) As explained in the CION guidance, the purpose of the CION process is to consider and identify the overall economic and efficient connection option in line with the statutory duty under the Electricity Act to</p>
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**Q2.2.2 Selection of Substation Site**

			<p>develop and maintain an efficient, coordinated and economical transmission system. So there is a focus on the cost and economic rationale of a connection option but deliverability is also important and consenting and environmental factors influence this and so can also influence the preferred connection option recommended through the CION process. As highlighted in (g) above, for SEP and DEP, the CBA undertaken as part of the CION process identified Norwich Main as the second most economic connection option - but this was only by a relatively small cost margin compared to the most economic connection option.</p> <p>Compared to Norwich Main, the most economic connection option required a new transmission substation and a longer cable route, which was considered to have increased consenting/deliverability risk. As a result, all three CION parties (NGET, NGESO and the Applicant) agreed that Norwich Main should be the recommended option from the CION process, since it presented less risk to the project deliverability.</p> <p>As a general point, it is important to note that the assessment of the respective potential connection options under the CION process considered the full length of the connection from the arrays to the proposed connection location i.e., offshore as well as onshore. Appendix A.6 of Appendix A - Supporting figures to the Applicant's Responses to the Examining Authority's Second Written Questions (document reference 16.2.1) presents the location of the existing Walpole and Norwich substations at the time of the CION process, from which it can be seen that the total distance (onshore and offshore) to Walpole is clearly greater than the distance to Norwich Main.</p>
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320000

360000

400000



# Sheringham Shoal and Dudgeon Extension Projects

Title:  
Onshore Grid Substations

- Legend:
- Sheringham Shoal Extension
  - Dudgeon Extension
  - DOWF & SOWF, Existing Wind Farms
  - Export Cables SOWF & DOWF
  - Grid Substations
  - Electricity Transmission Overhead Lines

5920000

5880000

5840000

5800000

**BICKER FEN**  
400KV S/S

**SPALDING NORTH**  
400KV S/S

**WALPOLE**  
132KV S/S

**WALPOLE**  
132KV GIS S/S

**WALPOLE**  
400KV S/S

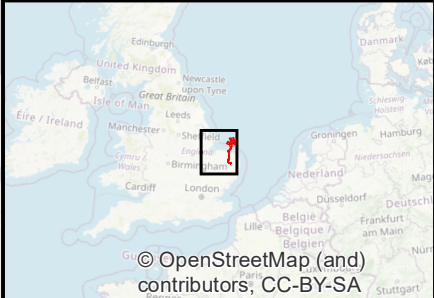
**NECTON**  
400KV S/S

**NORWICH TROWSE**  
132KV S/S

**NORWICH**  
400KV S/S

**BURWELL MAIN**  
132KV S/S

**BURWELL MAIN**  
400KV S/S



Coordinate Reference System: WGS 1984 UTM Zone 31N  
Transformation WGS84: OSGB\_1936\_To\_WGS\_1984\_7



Scale: 1:548 845      Scale at size: A3

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