

**SCOTTISHPOWER  
RENEWABLES**

# **East Anglia ONE North and East Anglia TWO Offshore Windfarms**

## **Applicants' Responses to Examining Authority's Written Questions 3**

### **Volume 8 – 3.11 Marine and Coastal Physical Processes**

Applicants: East Anglia ONE North Limited and East Anglia TWO Limited

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**Applicable to East Anglia ONE North and East Anglia TWO**



#### Revision Summary

Rev	Date	Prepared by	Checked by	Approved by
001	07/06/2021	Paolo Pizzolla	Gero Vella	Rich Morris

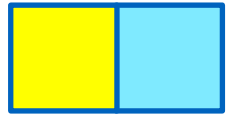
#### Description of Revisions

Rev	Page	Section	Description
001	n/a	n/a	Final for Submission



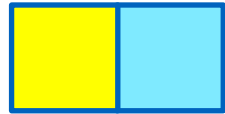
## Glossary of Acronyms

DCO	Development Consent Order
DML	Deemed Marine Licence
ESC	East Suffolk Council
HDD	Horizontal Directional Drilling
ISH	Issue Specific Hearing
LPA	Local Planning Authority
MMO	Marine Management Organisation
NE	Natural England

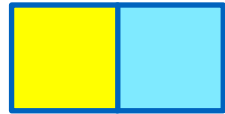


## Glossary of Terminology

Applicants	East Anglia TWO Limited / East Anglia ONE North Limited
Development area	The area comprising the onshore development area and the offshore development area (described as the 'order limits' within the Development Consent Order).
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.
Horizontal directional drilling (HDD)	A method of cable installation where the cable is drilled beneath a feature without the need for trenching.
HDD temporary working area	Temporary compounds which will contain laydown, storage and work areas for HDD drilling works.
Landfall	The area (from Mean Low Water Springs) where the offshore export cables would make contact with land, and connect to the onshore cables.
Offshore development area	The East Anglia TWO / East Anglia ONE North windfarm site and offshore cable corridor (up to Mean High Water Springs).
Transmission DML	The deemed marine licence in respect of the transmission assets set out within Schedule 14 of the draft DCO.

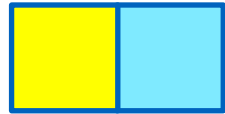


ExA. Question addressed to Ref.	Question	ExA. Question	Applicants' Response
<b>3.11 Marine and Coastal Physical Processes</b>			
3.11.1	EDF Energy Nuclear Generation Ltd, ESC, MMO	<p><b>Avoidance of the Coralline Crag</b></p> <p>Paragraph 15 of the Landfall Hydrogeological Risk Assessment [REP6- 021] states that the HDD is expected to be within the Coralline Crag beneath the cliffs, and the strength of the Coralline Crag is expected to prevent any drilling fluid breakout at this point. In [REP8-052] the Applicants state that complete avoidance of the Coralline Crag has never been proposed. The Applicants go on to state any reference to avoiding direct physical disruption to the outcrop of Coralline Crag refers to the parts of the Crag that are visible at the surface; the HDD bores as proposed pass through the Coralline Crag, but beneath its visible surface before 'punching out'.</p> <p>a) Please could you confirm that in referring to the avoidance of direct physical disruption to the outcrop of Coralline Crag it was also your understanding that this meant only those parts visible at the surface and that the HDD bores would in fact pass through the Coralline Crag?</p> <p>b) If this was not your understanding does this cause any concern and what would be the implications?</p>	<p>The key matter pertaining to the Coralline Crag is avoiding punching-out within the visible extent of the Coralline Crag (i.e. where the Coralline Crag is visible on the seabed) to mitigate concerns raised by EDF that punching-out within the visible extent could affect coastal processes and place the cooling water infrastructure of Sizewell B at risk. To this end, the Applicants have made a commitment to avoid punching out in the visible extent of the Coralline Crag, which is secured through Schedule 10, Part 7 (Protection for EDF) of the draft Development Consent Order (DCO):</p> <p><i>5.—(1) The undertaker shall consult with EDF Energy in the preparation of the landfall construction method statement prior to submission of the landfall construction method statement to the relevant planning authority for approval in accordance with requirement 13.</i></p> <p><i>(2) Prior to carrying out Work No. 6, the undertaker shall carry out geophysical surveys to confirm the visible extent of the Coralline Crag formation and shall provide the results of such surveys to the extent that they demonstrate the visible extent of the Coralline Crag to EDF Energy on completion.</i></p> <p><i>(3) The undertaker must not undertake cable trenching activities or locate the HDD punch out within—</i></p> <p><i>(a) the Punch Out and Trenching Restriction Area shown on the Activity Exclusion Zones plan (Drawing No. EA2-DEV-DRG-IBR-001259); or</i></p>

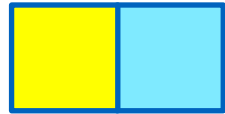


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				<p><i>(b) the visible extent of the Coralline Crag as confirmed by the surveys undertaken under sub-paragraph (2), unless otherwise agreed with EDF Energy (such agreement not to be unreasonably withheld or delayed).</i></p> <p>East Suffolk Council (ESC) and EDF confirmed at Issue Specific Hearing 4 pn 19 January 2021 (between timestamps 1:08:10 to 1:16:21 <b>Issue Specific Hearing 4 (ISH4) (Session 2) - Transcript - 19 January 2021</b> [EV-056]) that reference to the avoidance of direct physical disruption to the outcrop of Coralline Crag meant only those parts visible at the surface:</p> <p>At timestamp 1:15:13, Paul Patterson (Senior Coastal Engineer, ESC) asked the following question:</p> <p><i>I understand that you're seeking agreement from SPR that the PunchOut will be 100 metres away from the Coralline crag. Can I just clarify that I presume that you mean that it will be 100 metres away from the point where the Coralline crag is visible on the surface of the seabed. Is that correct?</i></p> <p>To which, Angus Bloomfield (EDF) responded;</p> <p><i>Paul, to answer your question, that is our expectation as well because yes, the Coralline crag could extend considerably further below the seabed. So yes, the extent surveyed where the Coralline Crag is exposed above the seabed.<sup>1</sup></i></p>

<sup>1</sup> Please note the Applicants have corrected typographical errors in the transcript in quoting the text.

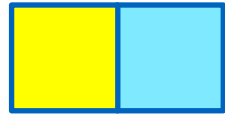


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3.11.2	The Applicants, MMO	<p><b>HDD and the lead regulator</b></p> <p>In [REP7-074] NE states that for most other OWF projects, excluding EA1 and EA3, the MMO has been the lead regulator due to environmental issues normally occurring below Mean High Water.</p> <p>a) How would this work in practice with the LPA leading on HDD activities?</p> <p>b) How will MMO be incorporated in the decision making for the marine elements of HDD?</p>	<p>a) The Marine Management Organisation (MMO) confirmed at ISH17 under Agenda Item 2 that it would liaise with the Local Planning Authority (LPA) with regard to feeding into the approvals process for the Landfall Construction Method Statement, which must accord with the <b>Outline Landfall Construction Method Statement</b> [REP8-053], for which the MMO is a consultee and that it was content that the MMO will be part of the decision making process.</p> <p>b) The MMO is a consultee to the <b>Outline Landfall Construction Method Statement</b> [REP8-053]. Section 1.4 of the document secures consultation with the MMO in the preparation of the final Landfall Construction Method Statement prior to its submission to the relevant planning authority for approval in accordance with Requirement 13 of the <b>draft DCO</b> [REP8-003]. Furthermore, in accordance with requirement 13 of the <b>draft DCO</b> [REP8-003], the MMO will also be consulted by the relevant planning authority in the approval of the final Landfall Construction Method Statement.</p> <p>The MMO will therefore be incorporated into the decision-making process for the marine elements of the Horizontal Directional Drilling (HDD) through consultation during the preparation of the final document and through consultation during the approval process.</p>
3.11.3	The Applicants	<p><b>HDD feasibility</b></p> <p>Please comment on NE's assertion in [REP7-074] that even short sections of HDD can fail (eg Lincs OWF 2010). It also notes that in recent years there have been issues with sinkholes (eg Hornsea 2 and Triton Knoll) and even</p>	<p>The Applicants dispute Natural England's (NE's) comments on HDD. NE have provided no evidence that the Projects' HDD is likely to be subject to such failure and indeed numerous HDDs have been successfully undertaken within the UK through a variety of ground conditions without issue.</p>

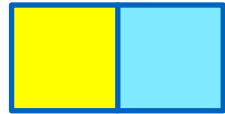


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		<p>though sediment conditions are different, lessons must be learnt to make sure it won't happen here. Should this be considered in the HDD verification note? If not, please justify why.</p>	<p>NE also state that sediment conditions are different between the Hornsea 2 and Triton Knoll projects and the Applicants' Projects but continue to infer that the Projects' HDD is susceptible to failure.</p> <p>The <b>HDD Verification Clarification Note</b> (REP6-024) has been prepared by Riggall &amp; Associates, a leading independent firm specialising in HDD which has worked on over 200 HDD projects and has extensive experience of long-distance HDDs, and who conclude that <i>"based on the available information, a landfall HDD of up to 2km in length in the expected ground conditions is achievable."</i></p> <p>Ground investigations will be used to confirm the assumed levels of geological strata and inform the detailed design of the HDD, and offshore surveys will provide high accuracy bathymetric information as well as sub-bottom profiling that identifies the three-dimensional distribution of strata using geophysical methods. This accurate ground model will be used to inform the detailed design of the HDD in the offshore sections of the HDD route.</p> <p>The Applicants therefore do not consider that it is necessary to update the <b>HDD Verification Clarification Note</b> (REP6-024) in light of NE's comments.</p> <p>The Applicants also note that under Requirement 13 of the <b>draft DCO</b> (REP6-024), no part of Work Nos. 6 or 8 may commence until a landfall construction method statement (which accords with the outline landfall construction method statement); been submitted to and approved by the relevant planning authority in consultation with the relevant statutory</p>





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				<p>nature conservation body and to the extent that it relates to works seaward of mean high water springs, the MMO. Results of the abovementioned ground investigations will be presented within the landfall construction method statement.</p> <p>The above provides the necessary security that, prior to HDD works commencing at the landfall, the Applicants must demonstrate to the satisfaction of the relevant planning authority, that the alignment, depth and method of construction is suitable.</p>
3.11.4	The Applicants		<p><b>Monitoring of coastal processes and remedial action</b></p> <p>Both monitoring of coastal processes and remedial action are relevant to NE and MMO. How will consultation be undertaken?</p>	<p>Consultation on monitoring of coastal processes and remedial actions will be undertaken through Requirement 13(1)(b) of the <b>draft DCO</b> [REP8-003].</p> <p>Requirement 13(1)(b) requires submission and approval by the relevant planning authority in consultation with the relevant statutory nature conservation body of a landfall monitoring plan, which accords with the outline landfall monitoring plan contained within appendix 2 of the <b>Outline Landfall Construction Method Statement</b> [REP8-053]. Section 4 of the outline landfall monitoring plan provides a programme of monitoring and reporting and states that each landfall monitoring report will be submitted to ESC and NE.</p> <p>The MMO are not specifically named within the outline landfall monitoring plan as its objectives are to quantify the beach profile and cliff top changes along, or in the close vicinity of, the alignment of the HDD bores following construction of the landfall and during the operational life of the Project. The amendments made to Requirement 13 to include the statutory nature conservation body only as a</p>



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			<p>consultee on the landfall monitoring plan was agreed with NE and the MMO and confirmed by MMO under section 1.1 of the MMO's deadline 9 submission [REP9-060].</p> <p>It is however worth noting that Condition 18 of the Transmission Deemed Marine Licence (DML) (Schedule 14) within the <b>draft DCO</b> [REP8-003] requires completion of post-construction surveys. Paragraph (2)(b) of the Condition requires the undertaker to complete a swath-bathymetric survey of the Order Limits in which construction works were carried out to assess any changes in bedform topography and such further monitoring or assessment as may be agreed to ensure that cables have been buried or protected. Paragraph (3) of the Condition requires the survey reports to be submitted to the MMO within agreed timescales. Additionally, paragraph (4) of the Condition states that following installation of cables, the cable monitoring plan required under condition 13(1)(d)(ii)(cc) of Schedule 14 must be updated with the results of the post installation surveys. The plan must be implemented during the operational lifetime of the project and reviewed as specified within the plan, following cable burial surveys, or as instructed by the MMO.</p>