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Norfolk Vanguard Case Team
Planning Inspectorate
(Email only)

MMO Reference: DCO/2016/00002
Planning Inspectorate Reference:
EN010079
Identification Number: 20012773

16 January 2019

Dear Sir or Madam,

**Planning Act 2008, Vattenfall Wind Power Limited, Proposed Norfolk Vanguard Offshore Wind Farm
Response to Examining Authority's Rule 8 Letter – Change Request to the application and Errata for Environmental Statement (ES) Chapters**

On 26 June 2018, the Marine Management Organisation (the “MMO”) received notice under section 56 of the Planning Act 2008 (the “PA 2008”) that the Planning Inspectorate (“PINS”) had accepted an application made by Norfolk Vanguard Offshore Wind Farm (the “Applicant”) for determination of a development consent order (the “DCO Application”) (MMO ref: DCO/2016/00002; PINS ref: EN010079).

The DCO Application seeks authorisation for the construction, operation and maintenance of Norfolk Vanguard offshore wind farm, comprising of up to 200 wind turbine generators together with associated onshore and offshore infrastructure and all associated development (“the “Project”).

The MMO received a Rule 8 letter on 19 December 2018 for the proposed Norfolk Vanguard Offshore Wind Farm (Ref EN010079). Included in this letter was a Change request to the applicant and Errata for ES chapters from the applicant.

The MMO has reviewed the documents and sets out its initial comments below. The MMO reserves the right to make further comments on the changes throughout the examination process and may modify its present advice or opinion in view of any additional information that may come to its attention.

Comments on the Norfolk Vanguard Offshore Wind Farm Change Request to the application

1. General Comments

1.1 The MMO agrees with the changes made in the Errata in relation to offshore aspects.



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- 1.2 The MMO agrees with the conclusions within the Change report for benthic ecology, shellfisheries and marine water and sediment quality.
- 1.3 For marine coastal processes, the MMO considers that the findings in the ES and the Change Report are reasonable, accepting that the impact assessment has been made by expert judgment rather than directly applying site-specific data.
- 1.4 For underwater noise and fisheries the MMO requests further information relating to the 24-hour exposure – please see sections 4 and 5 of this response.
- 1.5 The MMO identified the following detailed design parameters should be updated on the dDCO to accurately reflect the changes outlined in the Change report:
 - Schedule 1 Part 1 requirement 8(1)
 - Schedule 11 Part 4 1(2)
 - Schedule 12 Part 4 1(2)

2. Benthic Ecology

- 2.1 The MMO is satisfied that the likely impacts from the additional piles documented within the proposed Change Report, are within the predictions of the ES.
- 2.2 The MMO agrees with the conclusions provided within the Change report regarding the likely impacts on benthic ecology.

3. Shellfisheries

- 3.1 The MMO is satisfied that, in the context of the wider project, likely impacts from the additional piles documented within the proposed Change Report, are within the predictions of the ES.
- 3.2 The MMO agrees with the conclusions provided within the Change report regarding the likely impacts on shellfisheries.

4. Fisheries

- 4.1 The MMO is currently in discussion with the applicant regarding impacts of underwater noise on herring and cod spawning grounds/areas of high herring larval density (see Table 8 Statement of Common Ground - Fish and Shellfish Ecology, Assessment methodology of the SoCG). Notwithstanding this, MMO's comments in regards to underwater noise in relation to the change report are set out in section 5 of this response.
- 4.2 MMO is satisfied that the likely impacts due to drill arisings and temporal duration of pin piling are broadly within the predictions made in the ES. Please see section 5 below however regarding impacts on cumulative Sound Exposure Levels.

5. Underwater Noise

5.1 The MMO notes that a maximum hammer energy for pin piles of 2,700 kJ was assessed in the ES, and no change to the maximum hammer energy is proposed. Piles (and corresponding source levels) of approximately 4 m in diameter (mid-way between the 3 m and 5 m pin pile options under consideration) were used for the original pin pile modelling (see Appendix 5.3 of the ES). The MMO does not have any major concerns with the proposed increase in pin pile diameter from 3 m to 5 m.

5.2 The Change report states that:

“the number of foundations to be piled at any one time will not change. The increase in the number of offshore electrical platform piles therefore has no influence on the impact range of underwater noise”.

This is dependent on whether the 24-hour exposure will increase, i.e. whether there is an increase in the number of piles to be installed per 24 hours. The MMO notes from the ES that the expected offshore working hours during construction are anticipated to be 24/7; however, it appears that the maximum number of piles anticipated to be installed in any 24-hour period was not stated. The MMO requests further clarification to understand whether there is any change to what was previously assessed in regards to potential impacts of underwater noise due to piling.

5.3 The MMO considers that trebling of the number of piles to be installed may increase the duration of noise exposure and consequently the risk of cumulative sound exposure levels for fish and marine mammals, and therefore seeks further detail to understand how the proposed changes affect the impact of cumulative sound exposure on sensitive marine receptors before it can be satisfied that the likely impacts are within what was predicted in the ES.

5.4 The MMO notes that the cumulative Sound Exposure Level pin pile scenario included four individual piles installed consecutively, leading to a total of 8400 strikes over 6 hours (1 hour 30 minutes for each pin pile) (see Appendix 5.3 of the ES). Chapter 5 of the ES shows that the maximum predicted time for installation of a piled quadropod foundation is 12 hours for the largest, 5m diameter pin piles (with a six-hour predicted average) or 6 hours for the 3m diameter pin pile (with a three-hour predicted average).

6. Marine Geology, Oceanography and Coastal Processes

6.1 Paragraph 21 of the Change Report notes that the modifications of the piling requirements will increase the potential drill arisings and suspended sediment due to the offshore platforms, leading to an increase in total potential suspended sediments of 3.1% (to 414,762m³), described as a ‘minor increase’.

The original ES assessed the suspended sediment as having no impact on defined marine process receptors and the Change report identifies this conclusion as unchanged by the proposed modifications (paragraph 26, Change Report). The original assessment was largely based on distance from the offshore wind farm (OWF) site and the expert assessment of modelling results for other, similar, windfarms.

The MMO considers that is a reasonable conclusion based on the methods and evidence supplied.

- 6.2 The Change report does not specifically address the impact of the additional piles on the local wave and current flows – the MMO expects there will be a measurable reduction in the transmission of energy through the structure. The magnitude and spatial extent of the impacts will increase as no details on the platform geometry or any specific modelling were presented in initial ES, it is difficult to estimate the relative changes.

However, the OWF is located a minimum of 47km from the shore and the changes in wave flow can be expected to be undetectable within a few km of the site – as a result, it would not be possible to ascribe any changes in regional marine processes (even if any were identified) as being consequential to the development.

- 6.3 The MMO is satisfied with the findings in the ES and the Change Report, noting that the impact assessment has been made by expert judgment rather than directly applying site-specific data.

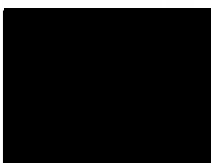
7. Marine Water and Sediment Quality

- 7.1 The applicant has identified that the increase in number and diameter of piles, will likely lead to an increase in drill arisings, which has the potential to affect suspended sediment and deposition. It has been estimated that the total drill arisings would increase to 414,762 m³ (from the estimated 402,320m³ assessed in the ES). The MMO agrees with the conclusion that the increased drill arisings, as a result of an increased number and diameter of piles, will not significantly affect the results of the Marine Water and Sediment Quality impact assessment.

- 7.2 Section 2.1.3.1.2 of the Change report states that the changes in drill arisings would “*cause no change to the predicted extent or duration of sediments remaining in suspension, given the very small (3%) increase in sediment volume and because the type of sediment and physical processes acting upon them would remain as presented in the ES*”. The MMO is satisfied that the increased drill arisings are unlikely to have a significant impact on the effects of suspended sediments detailed in the ES.

- 7.3 Section 8.7.7.4 of ES Chapter 8 states that the worst-case mound footprint, based on conservative assumptions, would only represent 0.08% of the total seabed within the OWF sites. The minor increase in drill arisings for the offshore electrical platforms within the OWF sites from 402,320m³ to 414,762m³ would represent 0.082% of the total seabed within the OWF sites, therefore there is no change to the worst-case mound footprint presented in the ES. The MMO is satisfied that the increased drill arisings are unlikely to have a significant impact on the mound footprint detailed in the ES.

Yours faithfully



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