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VATTENFALL

Norfolk Boreas Offshore Wind Farm

Consultation Report

Appendix 9.40 SERCO meeting modelling report

Applicant: Norfolk Boreas Limited
Document Reference: 5.1.9.40
Pursuant to APFP Regulation: 5(2)(q)

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Photo: Ormonde Offshore Wind Farm

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Meeting Notes

Project Title	Norfolk Vanguard Offshore Wind Farm
Client	Vattenfall Wind Power Limited (Vattenfall)
Purpose of Meeting	To discuss the submitted East Anglia (North) Wind Farm SERCO Mitigation Modelling Report
Date of Meeting	26th September 2016
Held at	Defence Infrastructure Organisation (DIO), Sutton Coldfield
Classification	Commercial in Confidence
Osprey Reference	71011/001

Meeting Overview

The meeting was requested by the Defence Infrastructure Organisation (DIO) in order to provide a response to the submitted East Anglia (North) Serco Limited (Serco) Wind Farm Mitigation Modelling Report (Issue 2). The Serco Report was requested by Vattenfall to provide a report, outlining the impact that the potential development of the East Anglia (North) Wind Farm would have on the Trimingham Air Defence Radar (ADR) in order for the Ministry of Defence (MOD) to decide if the suggested mitigation solution is acceptable. The Serco Report was completed on an indicative maximum layout of the whole development zone consisting of 655 turbines at a blade tip height of 225 metres.

Meeting Summary

Osprey provided the meeting with the Project timescales and a graphic of the development zone which illustrated the three distinct areas of Norfolk Vanguard (NV) West, NV East and Norfolk Boreas. After opening introductions were completed, Vattenfall provided an overview of the development, including a further detailed explanation of project timescales and brief details of the offshore and onshore cable routes. Osprey stated that the three areas of NV West, NV East and Norfolk Boreas are contained within the development zone and that decision on turbine type and layout would not be made until wind farm planning consent is provided.

Within the DIO a hold on a response to submitted Serco Mitigation Reports had occurred and that since Q1 2016 to now, work has been completed on working through the backlog created.

The MOD (DIO) described the process that the submitted East Anglia (North) Serco Report had followed within the MOD in order for a response to be made. The MOD assessment consists of three elements:

- A Technical Assessment to ensure the suggested mitigation is fit for purpose;
- An Operational Assessment by Heads of the Air Defence Radar Sites, Air Defence Electronic Warfare System (ADEWS) staffs and Trails and Test Evaluation by 56 (Reserve) Squadron; all of which ensure that the use of the suggested mitigation is operationally suitable and effective ; and
- Once the first two elements are complete the MOD (DIO) manage stakeholder engagement.

The MOD (DIO)explained that the Serco Report is valid and the radar impact can be mitigated. However, due to the size of the development zone, detectability of turbines and the consequential predicted effects of shadowing, reduction in Probability of Detection (PD) and the radar clutter that detectable turbines will present to the radar, the MOD cannot accept the mitigation solution presented within the Serco Report. Furthermore, ADEWS had completed further modelling of detectable turbines within the western part of the development zone, the result of which found that wind turbines with a blade tip height of 23 metres (m) above mean sea level (amsl) would be detectable to the Trimingham ADR.

Moving Forward

Osprey explained that Vattenfall required reassurance that the development is mitigatable and sought to reach an agreement that is achievable. The MOD (DIO) described the process that the MOD had taken with other offshore wind farms in which a designed reducing of impact was achieved by the consideration of a range of turbine heights, the lowering of turbine tip heights

to reduce radar detectability and consideration of the layout required regarding spacing of turbines (reducing shadow effects). DIO offered assistance through ADEWS of modelling scenarios in order to find a more acceptable solution and restricted this to a maximum of four individual assessments to be completed by ADEWS; Vattenfall agreed to supply the development shapefiles to the DIO to assist in the completion of the modelling assessments. The MOD (DIO) in response to a question stated that dependent on ADEWS availability it would take approximately three weeks for assessments to be completed. Osprey offered the assistance to in the first instance, model the development in order to find a potentially acceptable solution; work which could be provided to the MOD for verification. The MOD (DIO) requested that the DIO be informed if Vattenfall would like assistance in completion of the modelling.

ACTION: Osprey agreed to inform the MOD (DIO) if Vattenfall would like the MOD to complete the modelling.

ACTION: Vattenfall agreed to provide development shapefiles to the MOD (DIO).

The MOD (DIO) reminded the meeting of the route the development would take once the modelling had been completed. A further Serco report would be required and then the MOD would assess the report with the three element process, described earlier in the meeting, taking place.

The MOD (DIO) offered to provide assistance in evaluation of the total scheme of the offshore cable route, Vattenfall stated that consideration of aviation stakeholders and military danger areas had been considered within the specification of the cable route but welcomed the assistance offered and agreed to provide the finalised details once completed.

ACTION: Vattenfall agreed to provide finalised cable route details to the MOD (DIO)

Summary of Actions

Action	Description	Status	Owner(s)	Due Date
1.1	Osprey to inform DIO of the route to modelling	Open	Osprey	2 Oct 16
1.2	Vattenfall to provide development shapefiles to the MOD (DIO)	Open	Vattenfall	2 Oct 16
1.3	Vattenfall to provide finalised cable route details to DIO	Open	Vattenfall	2 Oct 16

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