SCOTTISHPOWER RENEWABLES

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EA1-CON-B-GBE-242689

Date:
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Contact:
Catherine Sibley
[redacted]

Dear Caroline,

The East Anglia ONE (EA1) Offshore Wind Farm Order 2014 - Proposed Non-Material Change Application 2021

EA1 Letter of response to Natural England

The following constitutes EA1's formal response to letter received from Natural England on 01st June 2021.

Development Consent Order Non-Material Change

EA1 welcomes NE's agreement that the proposed amendments should be considered as a non-material change (NMC) as they are fully within the consented Rochdale Envelope and the adverse impacts will be no worse than those assessed in the original Environmental Statement (ES) and Habitats Regulations Assessment (HRA).

Whilst EA1 notes NE's concerns in relation to the use of 'as-built' values in subsequent in-combination assessments, such matters are not relevant to the determination of this NMC application. Whether it is appropriate to use 'as-built' parameters in subsequent assessments will be a matter to be addressed in future assessments and, therefore, in the consenting process for the relevant projects seeking to adopt those 'as-built' parameters. However, in this particular context, we would note that the EA1 offshore wind farm has been constructed using the parameters specified in the NMC and has commenced operation. In these circumstances, there can be no risk that a subsequent NMC would be granted for additional or larger turbines in the future, because the impacts of a separate offshore construction period were not assessed in the original ES and such impacts therefore would not be within the Rochdale Envelope as originally assessed.

Supporting Statement – Collision Risk Modelling Update

EA1 note the responses from NE with regard to the Collision Risk Modelling (CRM) and have responded as necessary, these responses are detailed in

Estimation of the collision risk mortality for the reduced number of turbines (102) with an increased rotor draught height (30.8 m) compared with the previous collision estimates for this wind farm for 150 turbines with a draught height of 22 m (for the HVAC option under the 2016 Change Order) have reduced the predicted collisions by 48% to 85%, varying across species and model options. The updated CRM provides the necessary updates.
Table 1. In addition, Natural England reviewed an earlier version of the CRM report and requested additional collision risk modelling using Option 2 be provided for all species, and these are now included in the updated report. This update also corrects an error subsequently detected in the original flight height data; a subset of the height data were recorded in the Excel spreadsheet as text rather than numerically and were thus inadvertently omitted from calculations. This error has been corrected in the current version of this report.

Internal Use

Estimation of the collision risk mortality for the reduced number of turbines (102) with an increased rotor draught height (30.8 m) compared with the previous collision estimates for this wind farm for 150 turbines with a draught height of 22 m (for the HVAC option under the 2016 Change Order) have reduced the predicted collisions by 48% to 85%, varying across species and model options. The updated CRM provides the necessary updates.

Table 1. EA1 NMC NE CRM Comments and EA1s responses.

Comment ID	NE Comment	EA1 Response
1	We note that the revised values were calculated using species specific avoidance rates with Band Model Option 1 for gannet, kittiwake, lesser black-backed gull and herring gull, and Option 2 for great black-backed gull. However, it is not clear how the site-specific proportion of birds at collision height (PCH) used for Option 1 have been calculated, i.e. from boat-based estimates, or by using the relative size of the bird using digital aerial survey methods. This detail should be included in Appendix A for clarity. Natural England also advise that outputs from both Option 1 and Option 2 for all species are presented.	The site-specific flight height estimates were calculated using the original flight height data collected during the baseline site characterisation boat-based surveys (i.e. as far as possible in the same manner that the flight height estimates were calculated for the original design submitted in the Environmental Statement (ES)). Further details of the data have been provided. Additional modelling using Option 2 has been provided in the revised collision modelling report. It should be noted the reason that Band Option 1 has not been used to calculate great black-backed gull collisions (as explained in the collision modelling report) is due to the fact the sample size of this species was insufficient for reliable estimates to be obtained. For this reason, only Option 2 has been used for this species.
2	Natural England's general advice is that Option 2 i.e. generic flight height information should be used in Collision Risk Modelling unless it can be demonstrated that robust, site-specific datasets are available, so it is important that Option 2 outputs are provided by the Applicant.	The Applicant is aware that Natural England's advice on current applications is to present Option 2 estimates for the purposes of impact assessment. In the current case (a NMC application) the Applicant considered it more appropriate to present results obtained using the same methods used in the original application, in order that the updated collisions reflected only changes in the turbine parameters and not changes in bird data or methodology. This approach notwithstanding, as requested, Option 2 estimates have been provided for the remaining species.
3	We also seek clarity on the different reference points for the turbine parameters (i.e. mean high water spring (MHWS) vs mean sea level (MSL) in terms of draught height). We question why Appendix A refers to the draught heights to MSL, but the main section of report refers to draught height at MHWS.	The sea level datums used have been clarified below (point 4 and 5). For the avoidance of doubt, the collision modelling has used datasets measured from MSL in all cases (i.e. flight height data and turbine data).
4	Natural England's understanding is that the hub height entered in the Band (2012) spreadsheet should be referenced to Highest Astronomical Tide (HAT) – Band (2012) states: *'Normally, the hub height of wind turbines is measured from Highest Astronomical Tide (HAT), to help ensure navigational clearance requirements are satisfied. However, bird flight heights are measured relative to sea level, which may be 2-3 metres or more lower. Mean sea level (Z0) and HAT are normally stated relative to Chart Datum (CD). The calculation allows for a tidal offset to be added to the hub height,*	The Applicant draws attention to the first word in the quoted statement: 'normally'. Bill Band (2012) did not make the use of HAT for turbine heights a requirement of the collision model and in fact recognised that turbine heights are often given with respect to different sea level datums (e.g. lowest astronomical tide LAT, mean high water springs MHWS, etc.). For this reason, there is specific allowance made in the excel spreadsheet for using a different datum for the turbines than for seabird flight heights, by the inclusion of an offset term (cell C30 on the 'input data' tab). This value is added to the entered turbine height so that the collision calculation is based on a turbine height measured from mean

Comment ID	NE Comment	EA1 Response
	to allow for this additional height above mean sea level.'	sea level (MSL). In this manner the turbine data are aligned with seabird flight height data which are measured from MSL (e.g. the option 2 seabird flight heights from Johnston et al. 2014 or Option 1 site specific data if available). The value that is entered for the offset can be positive (if the inputted turbine height is given with reference to a higher tide than MSL, such as HAT) or negative (if turbine height is given with reference to a lower tide, such as LAT) or can be zero if turbine height is measured from MSL. The key feature is that the offset value, entered in metres, corresponds to the appropriate difference between the turbine reference datum and MSL. In the case of the current CRM the turbine heights were calculated with respect to MSL prior to the collision modelling, meaning that an offset value of 0 (zero) was appropriate.
5	In the main report there is reference to draught height being increased from 22m MHWS to 28m MHWS (Table 2.1), whereas Appendix A seems to be suggesting it is being increased from 22m MSL to 30.8m MSL. Perhaps a correction that accounts for the change going to 28m MHWS vs 30.8m MSL has been applied, but it is not clear why both the report and Appendix A state 22m MHWS/MSL. We seek clarification on this point, as this could potentially affect the CRM predictions.	Both statements in the report, giving the draught height as 28m from MHWS in Table 2.1 and 30.8m from MSL, are correct and appropriate for the contexts in which they are given and both are consistent with the built wind farm. The reason for the reference to MHWS (e.g. in Table 2.1) is because EA One uses MHWS as a parameter in various schedules, e.g. Schedule 1, Part 3, Requirement 3 (e). The change in the DCO / dML is from 22m MHWS to 28m MHWS. There is a degree of variation in turbine height across the wind farm, and the minimum draught height is 28.75m from MHWS, hence the change in the DCO /dML to a minimum draught height of 28m. For the purposes of the CRM the sea level reference used was MSL, since that was used in various original reports (as referenced: MSL was the sea level datum used in the original EA One submissions and the 2016 HVAC option submitted during the EA Three examination). It was therefore appropriate to use MSL as the reference point for the updated CRM provided in the NMC application. To this end the mean turbine height was calculated with reference to MSL; 30.86m, and this figure was used in the CRM. It is also worth noting that the fact that the original DCO/dML was based on the 22m from MHWS while the CRM was based on 22m from MSL means that the original CRM was in fact precautionary, since the rotor blades would be an average of 0.5m further away from the sea surface than was modelled in the CRM.

We trust that the information above adequately clarifies the matters raised by NE such that this application can now be determined.

Yours sincerely,

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Consent Compliance Senior Project Manager

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