

East Anglia One North and East Anglia Two
SASES (Substation Action Save East Suffolk)

**Supplementary submission on applicant's Clarification Note – Noise and
Vibration Assessment 17th November 2020**

9 December 2020

1. INTRODUCTION

The applicants have produced a document "Clarification Note Noise and Vibration Assessment" dated 17th November

This supplementary report by Rupert Thornely-Taylor addresses issues that arise with respect to the content of the Clarification Note

2. BASELINE SURVEY

Instrumentation (2.1.1)

The clarification provided regarding the instrumentation and its calibration fails to note that at least one of the types of the sound level meter used will have indicated an "under range" error for the low results such as 17 dB L_{A90} , and these under-range errors were not reported in the ES. This means that instrument/microphone self noise was included in the low results and that the true noise levels will have been lower than those reported.

3. CONSTRUCTION PHASE ASSESSMENT

Methodology and criteria (3.1)

The applicants maintain that the BS5228-1:2009+A1:2014 ABC Method is the appropriate guidance to use for the assessment of significance of construction phase noise impacts. However, the applicants have misapplied the ABC method in the ES which falsely says the ABC threshold is the boundary between no impact and negligible impact.

What BS 5228 actually says is "NOTE 1 A potential significant effect is indicated if the $L_{Aeq, T}$ noise level arising from the site exceeds the threshold level for the category appropriate to the ambient noise level." For noise which just exceeds the

ABC thresholds the ES interprets the words "potential significant effect" as meaning "negligible impact".

The ABC method only appears in an informative Annex to BS 5228 as one of the examples given of methods for assessing the significance of noise effects. While it not a normative part of the Standard, it has been given added status since publication of the Design Manual for Roads and Bridges document LA111 Revision 2 May 2020, Table 3.12, which takes BS5228 further into the setting of LOAEL (Lowest Observed Adverse Effect Level) and SOAEL (Significant Observed Adverse Effect Level) values and says that LOAEL is the baseline and SOAEL is the ABC threshold. This is in sharp contrast to the ES which says the ABC threshold is the boundary between no impact and negligible impact.

The consequence of this misapplication of the ABC method is that construction effects have not been assessed correctly.

Noise modelling methodology (3.2.1)

The applicants assert that treating moving sources as point sources gives a higher, more conservative predicted noise level than a moving point line source as no account is taken of the reduction in time that the source would be close to the receptor. This effect is dependent on the relative locations of the points and the receptors, and the applicant has not demonstrated that the assertion is true for all cases.

4. OPERATIONAL PHASE ASSESSMENT

Operational Noise Limits (4.1)

The statement in paragraph 58 is incorrect. Requirements 26 and 27 of the draft DCO refer to the noise rating level, not "the emission of operational noise". Noise rating level is defined in BS 4142:2014+A1:2019 as the specific sound level plus any adjustment for the characteristics features of the sound. It may therefore be numerically greater than the operational noise level.

Paragraph 59 asserts that the proposed rating level limits accords with the recommendations in paragraph 5.11.6 of EN-1. This paragraph states that "Operational noise, with respect to human receptors, should be assessed using the principles of the relevant British Standards and other guidance." Those principles have not been correctly used as is explained in my report of 30 October 2020 which forms part of the SASES written representation dated 1 November 2020.

Paragraph 62 refers to unknown factors in the design of the Project's onshore substations and National Grid Infrastructure. The established procedure in environmental assessment is that design assumptions should be made and assessed, and alternatives considered. That is, both Air-insulated and Gas-insulated technology should be assessed. If the applicants are unable to meet -5,

that suggests that if in the event (either due to a change in the value of the 34 dB limit in the draft DCO or the emergence of a necessity to apply a tonal character correction) compliance might not be technically achievable

Projects' Onshore Substations (4.2.1)

Table 4 provides source noise data for the operational onshore substation. The source sound level for the Main Transformer (with enclosures) and the Shunt Reactor is stated as a level at a distance from the enclosure. It is mathematically incorrect to apply that figure to a point source at the same distance as radiation from a large rectangular enclosure is significantly different from radiation from a point.

Uncertainty within the Operational Noise Assessment (4.3)

Paragraph 69 states "The Applicants note that uncertainty 'budget' is not a requirement of BS4142:2014+A1:2019 and is not a standard inclusion within noise assessments undertaken for NSIPs"

Annex B of BS 4142 runs to six pages entitled "Consideration of uncertainty and good practice for reducing uncertainty". It opens with the words "Because this standard is not intended to provide a single numerical value against which the significance of a sound source can be determined, consideration needs to be given to the uncertainties involved in sound level measurements and subsequent assessment of data, together with the potential effects of such uncertainties on the outcome of the assessment." Such consideration has not taken place.

Paragraphs 70 and 71 appear to indicate that the applicants could accept an uncertainty of ± 3 dB in the detailed design. Applying an uncertainty of ± 3 dB in the detailed design takes the applicants to within 2 dB of the -5dB figure discussed in paragraph 62 which the applicants says they are unable to meet.

RATING NOISE LEVEL CONSIDERATIONS (4.4)

Position on tonality (4.4.1)

The applicants have made their tonality assessment using octave bands. Annexes C and D of BS 4142:2014+A1:2019 provide information and normative guidance respectively on the assessment of audibility of tones using 1/3 octave bands or narrower bands.

The applicants have not carried out a proper assessment of the tonality of the predicted noise levels.

Position on available mitigations (4.4.4)

Paragraph 84 refers to numerous post consent detailed design studies but the applicants have not made any of these available, either in support of their position

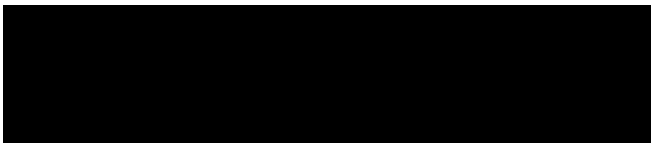
on the tonality of the noise, uncertainty, or the achievability of the noise limits specific to these applications.

OTHER MATTERS (5)

Consideration of Alternatives (5.1)

In paragraph 87 the applicants assert that they have assessed the worst case scenario. Given the absence of an uncertainty assessment and the stated lack of detailed information together with the effect of the errors and omissions detailed in my report of 30 October 2020 this assertion is not supportable.

Signed



Rupert Thornely-Taylor
9 December 2020