SPR EA1N and EA2 PROJECTS

DEADLINE 9 – COMMENTS ON APPLICANTS' AND ESC'S DEADLINE 8 SUBMISSIONS IN RESPECT OF NOISE

Interested Party: SASES **PINS Refs:** 20024106 & 20024110

Date: 15 April 2021 **Issue:** 1

INTRODUCTION

1. A number of submissions relating to noise were made a Deadline 8 by the Applicants and East Suffolk Council. This submission focuses on operational noise since a compromise has been reached in relation to construction noise.

2. In respect of operational noise the Applicants have reached an agreement in respect of the operational noise requirement with the Council, no doubt by the Council in the anticipation that the examinations were coming to an end. However that agreement did not involve SASES. It is disappointing that SASES was not contacted in relation to operational noise matters which were discussed by Applicants and the Council alone, contrary to Action Point 10 ISH 15.

3. The Council's response to Action Point 10, Requirements on Noise, is misleading as it fails to mention that SASES was not involved in those discussions despite the Examining Authorities' wishes. There is no excuse for the Applicants and the Council to have excluded SASES and its expert Rupert Thornely-Taylor from those discussions, particularly given the discussions concerning construction noise were productive.

4. As a consequence the substantive issues concerning background noise levels, tonality, the ability of the Applicants to mitigate adverse effects and the impulsive noise from the National Grid switchgear have not been resolved. Further it has resulted in a defective draft noise requirement which will continue to put the community of Friston at risk of significant adverse noise effects.

5. SASES relies upon its noise submission at Deadline 8 and makes the following comments on the operational noise related submissions made by the Applicants and East Suffolk Council made at Deadline 8.

BACKGROUND NOISE

6. Issues relating to background noise are unresolved.

7. The Applicants' Position Statement on Noise (REP8-039) contains the statement:

"39. Notwithstanding, if the background sound levels measured at SSR9 were applied at face value it would indicate a potential adverse impact at night but not an indication of a significant adverse impact. But when the absolute level of sound is considered it can be safely concluded that no impacts will occur. As a consequence, SASES representations on the background sound levels do not have any material implications on the outcome of

the BS4142:2014 +A1:2019 assessment when the differences between the rating level and background sound level are considered in context."

8. The background LA90 at SSR9 was 18 dBA, so that (applying BS4142) a rating level of 28 dBA LArTr is identified as SOAEL, subject to considering context. Detailed consideration of context does not change this, particularly as the Position Statement on Noise states "it is not necessary or reliable to use other methods [than BS 4142] such as that set out in NANR45 [the Defra/Salford report] and certainly not hybrid versions of the method." The DCO as currently drafted will allow 31 dB LArTr which would therefore be well in excess of the threshold of significant observed adverse effect level.

9. Accordingly, on any reasoned analysis the Applicants' assertion that there would be "no impacts" based on the use of the SSR9 background LA90 figure is demonstrably wrong. There would be significant adverse impacts.

TONALITY & MITIGATION

10. The Applicants in support of their position continue to rely upon the noise report prepared in respect of EA1 which is deeply flawed for the reasons explained in SASES submission at Deadline 6 (REP6-135). The Applicants also seek rely on an anecdotal report from [redacted] when he walked around the Bramford substation. In short there is no reliable evidence produced by the Applicants that the substations will not be tonal.

11. The Applicants' argument that modern transformer installations are not tonal is flawed for more than one reason.

12. Firstly, a number of recent environmental statements/noise assessments make the assumption that the noise is tonal. In addition to Triton Knoll there is evidence from Kintore (https://www.ssen-transmission.co.uk/media/4578/appendix-32-noise-impact-assessment.pdf). These are modern installations.

13. Secondly, attenuating transformers by enclosure does not change tonality. The enclosures reduce the level in all frequency bands, although not by exactly the same amount, but enclosures certainly do not suppress the prominence of the tone relative to adjacent bands. The only exception to this would be if other completely non-tonal sources on the site provided masking noise, but there is no indication that is the case.

14. Otherwise, only by reducing the noise level to the point that its perceptibility is reduced does tonality become reduced. There are two ways this can happen (1) by reducing the noise below the background and (2) by reducing the level below the threshold of audibility.

15. The Applicants have still failed to provide a logical reason for rejecting SSR9. They are proposing 31 dBA at SSR3. This will not be imperceptible, or even of reduced perceptibility in a background of 18 dBA. The ISO 226 threshold of audibility at 100Hz is 26 dB (unweighted, i.e. dBL, equivalent to 7 dBA), so at 31dBA the noise is well above threshold. Accordingly, there is no basis for rejecting a penalty for tonality based on the noise being imperceptible at the receptor.

16. The Applicants are rejecting BS 4142's statement that:

"The standard is not applicable to the assessment of low frequency noise.

NOTE Information on the assessment of low frequency noise is given in NANR45 [1, 2]"

because it also includes examples dealing with noise containing "hum". This is a complete *non sequitur*, as hums can occur at any frequency. Humans can hum, but not at 100Hz, and many industrial noise sources such as fans and pumps can hum all the way up the spectrum.

17. In NANR45, referred to in the note immediately following the disapplication for low frequency noise, low frequency noise is defined as noise below 160Hz.

18. The case that noise from a modern installation will be capable of full mitigation by enclosure is not made. This website

    https://www.kimptonacoustics.co.uk/project/blackhillock-substation-acoustic-enclosures-for-siemens/

    suggests that a reduction of 20 dB was challenging. The Applicants are already assuming, according to the ES, that a transformer with a sound power level of 101 dB will be reduced by enclosure to a sound pressure level of 58 dBA 1m from the enclosure. Conversion between sound power level and sound pressure level depends on the size of the enclosure, but this suggests that a reduction of well over 20 dB is already assumed, before facing up to lower Requirement 26/27 levels and a 6dB tonal penalty. It is unclear what further reduction can viably be achieved.

19. Given the profound consequences of the substations emitting tonal noise which will require a 6dB penalty the Applicants should be required to demonstrate that they can mitigate tonal noise prior to consent. Leaving this matter post consent on the basis of a pre-commencement condition places the deliverability of the projects at risk. This risk has become all the more acute because the Applicants have admitted (ID LA-08.15 of the SoCG with ESC and SCC, page 115 REP8-114)

    "The maximum operational noise rating levels secured through Requirement 27 are the lowest levels that can be agreed based on the Applicants discussions with potential suppliers."

EAST SUFFOLK COUNCIL'S POSITION

20. The Council also has unresolved concerns on background noise and refers to these as "professional disagreements" - see the Council's response to action point 10 from ISH 15 (REP8-148). These disagreements are also clearly reflected in the Statement of Common Ground with ESC, table 18 (REP8-114).

21. Yet in its response to Action Point 5 ISH 12 operational noise (REP8-145), the Council provides an example of LOAEL and SOAEL if background was set at 24dB.

    LOAEL ≥ 24 dB LAr (background level)

    SOAEL ≥ 34 dB LAr (background level plus 10 dB)

22. However for the reasons stated, 24dB is not the background level. It is only an example of a background level. If background levels are set in accordance with BS4142 taking into account SSR9 then LOAEL is 23dB and SOAEL 28 dB.

23. Despite the fact 24 dB is only an example, the Council seems to accept that 24dB is representative of background and has decided to accept the Applicants' draft noise requirement on this basis. This is an irrational decision since it is based upon an example of background which is incorrect in circumstances where the Council itself does not agree background noise levels proposed by the Applicants.

24. Furthermore the Council's decision seems to have been influenced by the Applicants' confirmation that the limits set in the noise requirement are the lowest levels currently achievable (see Statement of Common Ground and the Council's response to Action Point 5 ISH 12 REP8-145). This is an irrelevant consideration when determining what the appropriate noise rating levels should be, and in concluding whether significant adverse effects will remain. What this consideration does do is highlight that the Applicants cannot deliver the mitigation which is necessary to avoid a significant adverse effect.

25. The Council and the Applicants are also placing reliance upon a revised Requirement 12 in the draft DCO (REP8-004) and an updated Substations Design Principles Statement (REP8-082).

26. The new Requirement 12(2) states:

"No stage of Work No. 30 may commence until written details of the specification of plant, and any noise mitigation proposed in respect of Work No. 30 together with updated modelling, have been submitted to and approved in writing by the relevant planning authority. Work No. 30 must thereafter be implemented in accordance with the approved details."

27. There are a number of problems with this Requirement as follows.

    a. It defers the deliverability of mitigation to after consent, contrary to law and policy.

    b. It only applies to the Applicants' substations and not the National Grid infrastructure.

    c. No independent evidence or opinion has to be produced that the specification and noise mitigation will result in Requirement 27 being met. As has been stated on previous occasions the only parties with access to the necessary electrical engineering expertise are the Applicants. The local planning authority when faced with details of specification of plant and any noise mitigation will have no basis for determining whether they are adequate or not.

    d. It does not address the situation where the substations are built in accordance with the approved details but in fact the noise requirement is not met. Any approval of these written details by the relevant planning authority must be without prejudice to the overriding need for the substations to meet the noise requirement.

28. In respect of the amendments to the Substation Design Principles Statement (REP8-082), section 4.7, the majority of this section does not set out design principles and accordingly

paragraphs 70, 72, 73, 74 and 75 should be deleted. In respect of the content of paragraph 75 relating to the noise impacts on the public right of way network the assessment referred to should be submitted into the examination. Without wishing to prejudge that assessment the conclusion in relation to noise levels in relation to PRoWs being "negligible" is surprising given the proximity and length of a number of the rights of way surrounding the substations complex.

29. Further there is no design principle which requires the Applicants to design the substations including the National Grid infrastructure so that significant adverse impacts on health and quality of life from noise are avoided.

30. In relation to paragraph 71 the design principle should be to mitigate and minimise other adverse impacts consistent with EN-1 section 5.11. This should not be qualified by the words *"insofar as these mitigation measures do not add unreasonable costs or delays to the project or otherwise result in adverse impacts on other aspects of the environment",* which are inconsistent with policy.

NOISE REQUIREMENT

31. SASES position remains that consent should be refused on the basis set out in its Deadline 8 Submission on Noise (REP8-220).

32. In considering the drafting, the purpose of this requirement should be remembered, namely, to protect the residents of Friston, neighbouring residential properties and heritage assets from adverse noise effects for so long as the substations are in operation. The purpose of this requirement is <u>not</u> to limit so far as possible the responsibility of the Applicants for adverse noise affects. As noted above SASES and its expert, Rupert Thornely-Taylor were not involved in the drafting of the current noise requirement contrary to the direction of the Examining Authorities.

33. However if the projects were to be consented the current requirement in the draft DCOs is defective for the reasons set out below.

    a. The noise rating levels are too high and should be set at 30 dB. The reasons for this are stated in SASES Deadline 8 Submission on Noise, paragraph 2 (REP8-220). In addition and following practice in other windfarm projects there should be an additional requirement in respect of 100 Hz third octave band at 32dB LLeq (15 minutes)

    b. The noise sensitive locations should not be restricted to only three residential receptors. The Applicants are no doubt following the approach they took in EA1 at Bramford, but at Bramford where there were no residential receptors as close as those at Friston let alone a village community. The noise requirement should be applicable to any residential property recognising a detailed plan for monitoring compliance will need to be agreed which will be subject to consultation with Friston Parish Council. In such plan specific locations will be determined. It is not appropriate that locations are prejudged.

    c. It is self-evident that the most important centre for community life in the village is the Grade II* Saint Mary the Virgin Parish Church which overlooks the substations site. This is a noise sensitive location given its cultural heritage status and its use

for private prayer and worship, funerals, weddings and other significant life events. Further the War Memorial is adjacent to the church.

d. There is no requirement that assessment should occur when the substations are operating at full rated capacity which is when the substations will be at their noisiest. Generally a worst-case approach should be taken.

e. The testing is only proposed to be carried out on two occasions, on initial commencement of operation (without a requirement that commencement means commencement of operation at full capacity) and six months after the substations have been operating at full capacity. There is a real risk that measurements will be taken in atmospheric conditions that result in untypically low levels of noise at the measurement locations, so that apparent compliance with the noise limit requirements may be recorded, with the consequence that on many other days with atmospheric conditions more favourable for noise propagation the requirement limits will be exceeded by a significant margin. It is possible that the substations will become noisier as they age and therefore there should be an ongoing requirement to measure noise on annual basis and if there are reasonable grounds to believe the noise requirement is not being complied with.

f. The impulsive noise from the operation of switchgear in the National Grid substation is still not addressed.

CONCLUSION

34. The position in relation to operational noise remains unsatisfactory.

35. Reliance on a post consent pre-commencement condition to determine whether or not the necessary mitigation can be provided is contrary to law and policy.

36. Whilst the Applicants and the Council may have agreed on a form of requirement this is flawed for the reasons stated above.