Environmental Health Consultee Comments for Planning

Application Number: UTT/22/2046/PINS Land At Berden Hall Farm, Dewes Green Road, Berden.

Lead Consultee

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Comments

Having reviewed the Environmental Statement submitted for the above application S62A/22/0006 for the development of a ground mounted solar farm with a generation capacity of up to 49.99MW, together with associated infrastructure and landscaping at Land At Berden Hall Farm, Dewes Green Road, Berden. I have the following comments to make.

Noise impacts

The applicants have submitted an RPS Noise Impact Assessment dated 20/05/2022 reference JAJ02800-REPT01-R0. Also of relevance is the RPS Noise Assessment for Energy Reserve Facility, Stocking Pelham dated 15 September 2016 ref JAE9O81. “Battery storage facility”

1. I am aware that East Herts DC have investigated noise complaints from local residents regarding the impact of the existing electric transformer and battery storage facility. I understand that noise monitoring in a residents property identified a distinct 100 Hz and 200 Hz tone. Noise complaints about the battery storage facility have also been made to Uttlesford DC from residents living in Crabbs Lane and Berden Road in Stocking Pelham. The residents allege that they are affected by a low frequency hum which is intermittent depending on weather conditions and wind direction. I am concerned that the proposed development may increase the low frequency tonal noise impact at residential properties.

2. It is understood that the proposed development will comprise 9 inverters and an electricity substation, but the RPS assessment was based upon 11 inverters and a substation. (Ref 7.2) Therefore the assessment should be updated to reflect the current locations and number of plants.

3. Baseline noise conditions at the nearest noise sensitive receptors (NSRs) were established by the baseline monitoring undertaken on site over a 7-day period from Monday 31st January until Monday 7 th February 2022. (Pg 21 section 3.8) However, looking at Figure 3.1, monitoring location LT2 said to

be representative of NSRB (SE of site) and NSRD (Crabbs Lane, West of site) is in close proximity to the existing battery storage facility and is unlikely to be representative of baseline noise levels at NSRB which is located further away from this noise source. The report does not state if the baseline noise monitoring was undertaken with the battery storage facility and electricity substation switched off or give any indication on what levels each of the existing noise sources were operating at during the survey.

4. In section 3.14 of the assessment, it states;

   "During the survey period there were periods of rain and wind speeds were relatively low below 5 m/s, as such, data has been removed from the subsequent analysis to match these events."

   Looking at the wind speed data on page 40 figure 2 the wind speed on 7/2/22 at 0000hrs appears to be >5 m/s. It would be helpful if the report could clarify which periods of data were removed from the analysis for high wind speeds.

5. On page 25, section 4.3 of the assessment the report details that acoustic input properties of the proposed PV inverter units have been based on source data of a typical solar inverter unit. Therefore, the actual sound power level and the low frequency sound level of the plant to be installed is currently unknown. Low frequency noise complaints are extremely difficult to identify and resolve. To mitigate low frequency noise often requires a very high-density material barrier or enclosure because low frequency noise has long wavelengths and will penetrate easily through structures such as barriers, walls and windows whilst the higher frequency noise is reduced leaving residents with a low frequency tonal "hum" within their dwellings. The assessment should be based on noise data for the plant to be installed including low frequency noise data. The accuracy of the predicted noise based upon the source data used in the assessment is unknown.

   The use of BS4142 should be applied but its overall robustness in determining noise impacts in this case is limited due to the potential Low Frequency (LF) sound generated by the plant.

6. The assessment has used three reference time periods rather than the usual day 0700 to 2300 hrs and night 2300 to 0700 hrs in BS4142. It has also modelled an early morning time period of 0500 to 0700 Hrs (Section 4.7) During this time period it is assumed that the sound power level of the inverters is 15dBA lower than the maximum sound power level. This assumption is based on previous RPS experience of measuring noise from solar PV units, on a clear June day (Section 4.5). It is not clear if the measurements taken will accurately reflect the typical inverter noise from the plant to be installed at this facility and if the actual noise levels will reduce by a similar amount in the early mornings.

7. Table 4.2 on page 26 gives spectral data for all plant items based on plant previously measured by RPS. As stated above spectral data for the plant to be installed should be used in the assessment. However, it is of note that the data presented as typical for this type of plant has a dominant 100 Hz tone with a -8 dB Lw compared to -19 dB Lw at 80 Hz and -21 dB at 125 Hz. Therefore, it is likely that the proposed plant will increase noise levels in the

100 Hz tone which is already leading to noise complaints from East Herts DC residents.

8. I note that the existing battery storage facility, considered as part of the cumulative schemes, has been modelled based on the commissioning tests of the facility available in Appendix B of the RPS report. I note that page 48 Table 2 Comparison of Model Input Data for Latest Planning Assessment and Measured Sound Power Levels – Main Transformer for the existing facility found that the measured sound power level was 5 dB greater than that used in the original planning noise assessment for the facility. (Section 1.15) The commissioning assessment also found the inverters were measured at 13 dB below the levels used in the planning assessment. This was thought to be due to a low duty cycle on the transformers at the time of the assessment. It is not clear if the data used for the noise model in the current RPS assessment has been corrected to allow for normal operation of the inverters as opposed to the low duty cycle. If it has not been corrected the impacts may have been underestimated. I am also concerned at the measured data for the main transformer being found to be 5 dB above the predicted levels because if a robust worst-case scenario had been assumed to predict noise impacts I would not expect the actual noise levels to be higher. It raises concerns about whether the accuracy of the noise modelling used to predict noise impacts by RPS in this assessment can be relied upon or if the actual noise levels will be much higher.

   Appendix B section 1.15 (page 50) goes on to say the following about compliance with the planning condition on the existing battery storage facility.

   "The results of the modelling indicate that it is likely that, during periods of high demand that coincide with periods of elevated ambient air temperatures, the condition 3 criterion could be exceeded. Notwithstanding the point above regarding uncertainties associated with likely sound levels from the cooling plant under different loads, the exceedances above the condition 3 criterion could be in the order of around 5 dB. Depending on the magnitude of the rating penalty which would be appropriate in such situations, worst case exceedances of the condition 3 criterion could be up to around 10 dB, if a high rating penalty can be appropriately justified. However the likelihood of this occurring depends on many factors, and worst case exceedances could perhaps only occur for 1 hour a year or less, or may never occur at all."

   And in section 1.16 it stated that the facility would be unlikely to attract noise complaints. As detailed above noise complaints have been received by the local authorities about the existing facility which is in the same ownership as the application site.

   Also of note is that the mitigation measures stated in section 1.17 of the assessment namely;

   - E-House Condenser Fans: selection of quieter plant, or provision of engineering noise control options such as attenuators and acoustic cladding; and
   - The specification and installation of acoustic fencing, with the planning design as an initial design on which the detailed design would be based.

have not been implemented to date.

9. Page 27 Table 4.3 gives the Predicted Specific Sound Levels for the proposed development. However, the predicted noise levels are not given in third octave bands. As stated above this is required to assess the full impact of the proposed development on NSR.

10. Page 28, Table 4.4 Predicted Specific Sound Levels – Proposed Development and Cumulative Schemes NSR Specific Sound Level LAeq,Tr (dB), Section 5.2 states that a penalty of + 3 dB was applied to the predicted specific sound levels at all receptors to account for potential tonal characteristics at lower frequencies related to the proposed transformer. No other penalties were applied. Page 16 section 2.4 gives details of the rating penalty for tonal, impulsive and/or intermittent specific sounds advised by BS 4142:2014+A1:2019. I have concerns that the correction applied may not be robust given the low frequency tone of the existing facility already leading to noise complaints and the likelihood of similar low frequency tones with the proposed plant. I am also concerned about the variation in noise level output of the inverters that the report explains changes due to sunlight and weather conditions. (The report states in section 5.12 that intermittency is not expected to be dominant against the residual sound.) If higher corrections are applied the rating minus background level difference will also increase for all NSRs. It should be noted that Cribbs Lane is predicted to be -8 dB night-time (Table 5.3 page 30) but if additional corrections are added it is likely to exceed the Uttlesford Noise Assessment Technical Guidance (NATG) criteria of a BS4142 rating level of 5 dB (LAeq) below the typical background (LA90) level at the nearest noise sensitive location because of this development alone.

11. On page 32 Table 5.7 predicts a noise rating level of +1 dB over background at NSR D Crabbs Lane in the early morning. Table 5.9 predicts a noise rating level of +3dB over background. This is notwithstanding the concerns expressed above about the robustness of the plant noise source data used in the noise model and corrections used for the predicted noise impacts.

    In the RPS 2016 noise assessment for the battery storage facility the representative background noise levels at Crabbs Green Farm in Table 7.1 page 22 were given as Daytime 33 LA90,T dB, Evening 29 LA90,T dB and Night 27 LA90,T dB.

    By comparison the current noise assessment measured the background noise levels at NSRD Crabbs Lane as Early morning 36 LA90,T dB, Daytime 37 LA90,T dB and Night time 34 LA90,T dB. Therefore, the background noise levels used in the current assessment for the night-time noise are 1 dB higher than the daytime background noise levels at the comparable NSR in 2016 and the Nighttime background noise levels appear to have increased by 7 dB in that time period. It is assumed that the higher backgrounds are caused by the existing sub station and battery storage facility being in operation when the background noise measurements were taken for this development. This increase in background noise also shows the impact of the existing facilities on the noise levels in the local area. It is important to note that even with this increase in background noise levels from 2016 the rating level for the cumulative development, compared to the new higher background noise, does not meet the -5 dBA Uttlesford noise standard.

12. Section 5.17 of the assessment states there is no change in the predicted ambient noise levels at all receptors. This contradicts Tables 5.10 and 5.12 which give a +1 dB change at NSRD early morning and +2dB change at NSRD at night. Section 5.19 states that the increases would be below the level of perception but because frequency data has not been provided it is not clear if the increases would in fact be significant, particularly at low frequencies.

In summary, based on the information provided, I would like to **object** to the proposed development. Based on the submitted information I am not able to apply a robust post construction condition that will ensure that noise from the site will not be detrimental to residential amenity. I am concerned that low frequency noise levels at noise sensitive receptors will increase because of the proposed development and may result in a significant adverse impact when considered individually and cumulatively with the existing facilities. I would be willing to reconsider the objection if further information is submitted in support of the application to address the points raised.

External Lighting

In view of the rural location of the site, it is essential to ensure that any external lighting is properly designed and installed to avoid any adverse impacts on residential neighbours from obtrusive/spill-over light, or glare. The following condition is therefore recommended to secure this:

1. Details of any external lighting to be installed on the site, including the design of the lighting unit, any supporting structure and the extent of the area to be illuminated, shall be submitted to and approved in writing by the Local Planning Authority prior to the development commencing. Only the details thereby approved shall be implemented.

The lighting scheme shall conform to The Institution of Lighting Engineers Guidance for the Reduction of Obtrusive Light – Table 1 criteria and any other suitable lighting standards.

REASON: To protect the amenities of the occupiers of adjoining properties in accordance with ULP Policies ENV11, GEN2 and GEN4 of the Uttlesford Local Plan (adopted 2005).

Land contamination

I note that the Environmental Statement section 47 states that the soil survey for agricultural land has no mention of contamination or made ground. However agricultural land frequently has contamination from the use of agrichemicals, burning and burial of waste, fuel storage and other contaminants.

it is the developer's responsibility to ensure that final ground conditions are fit for the end use of the site. The following watching brief condition is, therefore, recommended.

1. If during any site investigation, excavation, engineering, or construction works evidence of land contamination is identified, it must be reported in writing immediately to the Local Planning Authority. The contamination shall be investigated by a competent person in accordance with the Essex Contaminated Land Consortium's 'Land Affected by Contamination: Technical Guidance for Applicants and Developers' and The Environment Agency Land Contamination Risk Management (LCRM) and other current guidance deemed authoritative for the purposes, to the satisfaction of the Local Planning Authority, to ensure that the site is made suitable for its end use.

   Where remediation is necessary, a remediation scheme must be prepared and submitted for the approval in writing of the Local Planning Authority.

   Following completion of measures identified in the approved remediation scheme a verification report must be prepared, which is subject to the approval in writing of the Local Planning Authority

Reason

To ensure that the proposed development does not cause harm to human health,

the water environment and other receptors in accordance with Policy GEN2

ENV12 and ENV14 of the Uttlesford Local Plan (adopted 2005).

Construction Noise & Dust

In view of the scale of the development as proposed, it is recommended that the following Construction Environmental Management Plan condition is attached to any consent granted to ensure that construction impacts on nearby residential occupiers are suitably controlled and mitigated:

Prior to the commencement of the development, a detailed Construction Environmental Management Plan (CEMP) shall be submitted to and approved in writing by the Local Planning Authority, and the plan shall include the following:

a) The construction programme and phasing

b) Hours of operation, delivery and storage of materials

c) Details of any highway works necessary to enable construction to take place

d) Parking and loading arrangements

e) Details of hoarding

f) Management of traffic to reduce congestion

g) Control of dust and dirt on the public highway

h) Details of consultation and complaint management with local businesses and neighbours

i) Waste management proposals

j) Mechanisms to deal with environmental impacts such as noise and vibration, air quality and dust, light and odour.

k) Details of any proposed piling operations, including justification for the proposed piling strategy, a vibration impact assessment and proposed control and mitigation measures.

The CEMP shall be consistent with the best practicable means as set out in the Uttlesford Code of Development Practice.

All works shall be carried out in accordance with the approved CEMP thereafter.

REASON: In the interests of the amenity of surrounding locality residential/business premises in accordance with Policies GEN1, GEN2, and GEN4 of the Uttlesford Local Plan (adopted 2005).