7000 Acres

7000 Acres Response to the Cottam Solar Project Application on the subject of:

Noise

Environment Statement Chapter 15: Noise and Vibration EN010133 APP/C6.2.15

Deadline 1 Submission – 17th October 2023

Noise is relevant to the planning of this development, and again should be seen within the context of the cumulative impact of the other proposed schemes. For the purpose of this report, we are focusing on the potential impact throughout the operator's life cycle. We are convinced, that given that this project is close to human inhabitants, there needs to be further evaluation carried out, to ensure that people in this area will not be impacted with resultant effects on health and wellbeing. It is a recognised fact that noise can have a huge effect on human health and wellbeing. Rurality is normally peaceful and quiet, particularly so at night, especially if distant from major roads, so this must be taken into consideration when evaluating this applicant's scheme. We know that many people gain inspiration from the natural quiet environments, and this is particularly true for mental health and wellbeing. This draws parallels with meditation.

During construction and decommissioning there is more tolerance to the noise as this is probably seen more as a nuisance over a short period of time. However, the forty-year gap poses a problem to humans, as the system would not lend itself to being switched off, so the noise would be constant, even though there might be variance in the noise output. This potentiates a problem on quality of life, and may result in the effected having to move home as a consequence.

The Government Guidelines advise identification of the overall effect of the noise exposure. This is easy to quantify for the construction and decommissioning phase, but more difficult for the operation phase. One cannot convincingly work out the projected noise from transformers, inverters and cooling fans, given that it is only a guess, as in quiet environments we know that sound travels and is subjective. 15.7.63 confirms that transformer and invertor noise manufacturer's data does not contain octave-band data (i.e., frequency sound data), so this needs clarification. This scheme and the others are located on flatland, a ridge to the East with little adequate greenery such as woodland which may absorb the sound. What would be the worst-case sound scenario that would be generated? Is there a difference in sound produced for external as opposed to internal sited transformers, and if so, how will they impact on the overall noise produced? Sound produced for equipment cooling is important (internal sited transformers) and will any generators be used in this process, or will the cooling fans be driven electrically? The more you load the transformer, the more sound is generated. So, this information is required when considering the overall noise generated from this scheme. There is no mention within the document of the low frequency hum that will be generated from the solar panels, and this needs to be factored in. Given that these panels are 4.5metres high, does this need to be considered as the sound will travel from an increased height as compared to the 2 or2.5 metre raised panel. These schemes tend to emit mainly low frequency sounds (tonal frequencies). Low frequency can be difficult to predict and similarly hard to identify and resolve. This is worrying as low frequency sound has the ability to travel further than high frequency sounds. This was not referenced in Chapter 15 point 15.7.65. How satisfied that the operational noise impacts will not be affected by different weather conditions, including changing wind direction which enables sound to carry further?

The Government guidance on noise states that the sound level effects cannot be seen as a single value, and that it needs to be referenced in a combination of more than one factor as noise exposure, as well as the number of occurrences of the various noises produced in each given period, the duration of the noise and the time of day that noise occurs. As noise is subjective, this makes quantifying the impact even more difficult. None of this is subjective data i.e., how each person interprets their level of background noise (human hearing vs recorded sound measurements). In fact, no reference is made within the document to significant observed adverse effect level, lowest observed adverse effect level, or the "no" observed effect level during the operator's cycle, as was identified in the applicants document Chapter 15 Table 15.2 which is worrying as this identifies the adverse effects on health and potential quality of life. We do not see a noise exposure hierarchy table within this document. This should be completed around the operator's cycle. They have chosen to use BS 4142:2014 as their guidance. The technical note points 15.4.37 on BS4142 is worrying especially when the background and rating levels are low and that absolute levels might suggest a more acceptable outcome. Is this the right guidance for a rural environment (query whether this is better placed in an urban environment where sound is louder). Also, we should take into account that background noise is subjective. Clearly, there is a need to tabulate their results from Cottam1/2/3a/3b into a hierarchy table which would give a better indication as to whether or not quality of life will be affected. Statements such as minor or negligible are meaningless because noise is subjective and perceived differently by different people. The greatest adverse effect is at night, because during the day there is always increased background noise which will dampen the extraneous sound. This makes humans more sensitive to sounds that can potentiate sleep disorders, with adverse effects on mental and physical health. How this noise relates to existing noise, whether continuous, the frequency and the pattern occurrence is particularly important and is not fully referenced. They have not used Cadna as a prediction, a statement of requirement around tonality, impulsivity and intermittency. Again, Cadna would not quantify the actual impact this will have when operational on those who live near the scheme. By mitigating against this, someone else will be affected.

Consideration should be taken when electricity demand varies and the system works to accommodate this. Powering up the system could potentiate more noise through noticeable impulsive/intermittent characteristics from plant noise emissions. Please reassure?

We would argue that rural landscape should be protected for its tranquillity and much of this is characterised by birdsong, the very reason most of us have chosen to live in such a peaceful environment and to be at one with nature. Have tranquil areas been identified, if not why not? How does this noise affect biodiversity, especially repeated or chronic noise? This is incredibly relevant when it comes to overall assessing schemes like this, and the cost to biodiversity. What impact will inverters have on horses?

In the overall context, this application should demonstrate that they have taken into consideration the impact it would have on the vulnerable and elderly, and how the noise might affect physical and mental health conditions in the general population. This area has a higher proportion of elderly, some of these are more vulnerable than others (e. g. those

living in nursing, residential homes or have care at home, as well as those who are already vulnerable because of loneliness and isolation). In the study area, there are potential people with learning disabilities. We note that there is no reference to this group of people who might be affected by noise.

Acoustic louvres will be placed at certain sites. Are these noise impact protections in place for the entire lifetime of the scheme, and if deemed as needed then it was considered that noise from the site is such that it will impact on quality of life.

From a medical point of view, some people suffer from a condition called hyperacusis. These people have acute hearing, the sound is heard in a loud way, sometimes uncomfortable or even painful, which becomes intrusive to their lives. In some people, this creates anxiety and depression, and in severe cases these people become withdrawn from daily activities, because of the sound. It is estimated that this affects about 2% of the adult population. Given the cumulative effect of all the schemes covering a population of approximately 30000 people, that would equate to 600 possible patients with this condition. Obviously, most people can deal with this, however we do not know how many within this study area are affected, and to what degree. There is also a concern around the causes of tinnitus and whether a prolonged exposure to this type of continuous noise, e.g., the low hum or higher frequency noises could potentiate this condition. We do know that stress, anxiety and depression can cause tinnitus.

Does the scheme take into account “background creep” where operational noise emissions from nearby developments are designed to achieve operational noise limits that do not contribute to additional noise in the area? How do we know these thresholds are not breached where the noise will exceed and effect human health and wellbeing? We argue the very point because the entire 4 now 5 schemes should have been seen as one. Hence a Health Impact Assessment, a good Equality Impact Assessment where for example, the blind are identified in the Local Impact Area could be affected as they have acute hearing to compensate.

Finally, in setting out the limits, subjective baseline thresholds should not be exceeded where quality of life could be affected, that is no effect of change in behaviour, attitude or other physiological response should be observed. Otherwise there will be consequences on human health and well-being, something that has been expressed in the open forum where mental health impact was mentioned frequently.

References:

1. UK Government Guidance on Noise Published 6th March 2014 Updated 22nd July 2019

2. Document in joint response to Sunnica Section 42 Consultation - The Councils (West Suffolk Council, Suffolk County Council, East Cambridge District Council and Cambridgeshire County Council)

3. Tinnitus UK