

## **7000 acres response to the question around noise:**

### **Question:**

**In your recent submission following ISH2 REP3-049 you suggest that the ExA should consider placing limits on Noise and other emission, but give no indication as to what the figures for these limits should be. Set out the limits that you would suggest would be appropriate and the reasoning to justify the figures you have provided.**

### **Response:**

Our response will be factored around the Guidance: UK Government Guidance on Noise Published 6th March 2014 Updated 22nd July 2019, where there is clear advice as to what they mean by observed effect levels. It was suggested that the response should be tabled in a noise exposure hierarchy table to clearly understand how the scheme will impact the receptors (residents/workers) who live and work near to this scheme. For the purpose of this response, we refer to the operator's cycle of sixty years (noise produced by the scheme once operational).

Within the applicant's assessment of noise, Volume 1, Chapter 11 Noise and Vibration Document Reference: EN010131/APP/ 3.1 January 2023, the author identifies the assessment methodology using the NPSE definitions which are referenced in the Government paper. These are referenced as the lowest observed adverse effect level (LOAEL) and the significant observed adverse effect level (SOAEL). We see no reference to the no observed effect level within this report, as this is the level of noise exposure below which "no effect" at all on health or quality of life can be detected. When does it cross the "no effect observed level"? We know that noise will have no adverse effect so long as this exposure does not affect health by causing a change in behaviour, attitude, or other physiological responses of those affected by it. In other words, it can have no effect or it can have a slight affect that there is a change in quality of life.

The applicant used CadnaAr to quantify resultant noise levels (relevant parameters), as well as using BS 4142 to recognise certain acoustic features. Unfortunately, none of this takes into account the receptors perception of sound which is important as they have lived experience of their environment and the sounds which are acceptable to them, both during the day and at night. Therefore, any adjustment to noise changes will result in an altered perception, which probably will impact on their quality of life. If sleep is affected, this will have an adverse effect on both physical and mental health. Also, baseline readings on traffic patterns is difficult, as we know that this varies throughout the day and night. People (the receptors) get used to this noise as familiar background noise over many years. The day time background noise is something everyone tolerates, however in rural areas this is far less than built up urban areas or living next to busy road. However, at night background noise in rural areas is greatly diminished, and therefore this is one of the reasons people move to or live in rural communities. The applicant provided a table Operational Noise Assessment Criteria (Table 11-10) which sets out the rating levels for day-time and night-time with reference to LOAEL and SOAEL. In table 11-11 Summary of Baseline Noise Monitoring results at location references showed day, evening, and night both at ambient and background sound levels. As pointed out, none of this is subjective data i.e., how each person interprets their level of background noise (human hearing vs recorded sound measurements). Why is it considered that in the absence of the scheme, future

baseline noise environment will be higher than represented by April 2021 measurement ambient sound levels?

A concern within the applicant's submission, is the statement where 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. There is reference to the steady hum, noise from transformers, invertors and fan noise. These are extraneous noises and need subjective testing before this scheme is even considered. These schemes tend to emit mainly low frequency sounds (tonal frequencies). They suggest the plant will operate continuously. However, if required to be turned off or reduced power when excess grid electricity is being generated, there will be noticeable impulsive/intermittent characteristics from plant noise emissions.

Table 11-17 Operational noise effects to receptor reference R1-R22 is worrying for the night-time period and weekends. You will note all effect levels are between LOAEL and SOAEL. These are predicted levels and do not take into account any subjective assessments. Some people are more sensitive to sound variation e.g., people with hyperacusis (see 7000 acres written representation. This will impact quality of life particularly sleep disturbance. Unless one removes the transformers, the invertors, the batteries and fans off site, one still producer of sound, the solar panels cannot be mitigated against (continuous hum). So hence our concerns and objection to these been placed in quiet rural areas in such a large scale. They will impact on people's health and well-being. The cumulative impact needs to be considered and therefore we ask the Secretary of State to insist on a thorough Health Impact Assessment across all the schemes. The applicant states clearly that operational noise emissions from nearby developments will be subject to EIA regulations and therefore designed to achieve operational noise limits that do not contribute to additional noise in the area (i.e., background creep). This is precisely why we would have liked to have seen one Environmental Impact Assessment to cover all the schemes (i.e., all the schemes to be assessed as one). That is the only way to ensure background creep does not occur, nor thresholds for noise exceed to affect health and wellbeing.

In reply, as previously stated, this area has natural sounds which in some cases is more prominent than background noise. Again, this is subjective, and has not been taken into account.

Therefore, 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. Please refer to the 7000 acres written representation noise submission.

**The author of this report is not an expert on sound, but has thirty years of knowledge of the effects of sound on hearing.**

Continued exposure to noise can cause health issues such as stress, anxiety, raised blood pressure, heart disease and mental health issues especially if there is sleep deprivation.

Prolonged exposure to either persistent or intermittent loud noise causes noise induced deafness.

With age, people will lose their hearing. This is called presbycusis. Therefore, it is important to protect hearing as much as possible when one gets older.

