Wind Farm Living EDUCATING THE LAWYERS Series

Lesson 13: High Acoustic Amenity is all about the Maths.

You know you live in a quiet rural environment, especially at night.

You enjoy a peaceful night's sleep now because the background is high for acoustic amenity, i.e. It is quiet. Don't let anyone tell you otherwise.

Wind farms pay big money to their acousticians to draw up graphs to tell the authorities otherwise.

It is in a wind farm's interest to produce reports that show your ambient rural environment is loud at night.

It is in their interest because it enables them to emit high turbine noise at night and still claim compliance.

Wind farm acousticians fudge the acoustic amenity of your rural environment by using a background regression line to calculate the 8dB trigger.

The New Zealand Standard (NZS) does not assess high acoustic amenity using a background regression line. It is illegal, and a corruption of the process.

The NZS suggests acousticians must collect, analyse and provide the data for verification. (C5.3.2).

All data including, noise data straight from the meter, wind data straight from the anemometer, RA W data containing audio files, local wind speed, wind direction, and rainfall are to be collected and analysed.

The NZS clearly outlines a step-by-step process to assess High Acoustic Amenity.

1. Wind speed data is to be at the same height for the background wind speed and predicted hub height wind speed.
   This ensures that a correct comparison can be made against background LA90 levels and predicted sound levels of the candidate turbine (post-construction) hub height.
   The NZS outlines a logarithmic correction method described in IEC61400-11 and NZS6808:1998.
2. Sort sound level and wind speed data such that only the night period (10pm to 7am) is to be considered and that the wind speed is to fall within the integer wind speed of 5m/s, 6m/s, and 7m/s.
3. Check each background sound level value against the audio recording taken within each 10-minute measurement period and discard Background sound level data if extraneous noise is observed in the audio recording.
4. Calculate the predicted sound level that occurs at the correct hub height wind speed, which is linearly extrapolated from the integer predicted sound levels at 5m/s, 6m/s, and 7m/s of the candidate turbine and the LA90 background sound level.
   i.e. calculate the difference between the predicted level and the background level at each of the wind speeds.
5. Average the differences obtained to see if there is an average 8dB difference at any of the wind speeds.
6. If the average difference is greater than 8dB then the NZS6808:2010 suggests high amenity is demonstrated.
7. If a high amenity applies at one dwelling (sensitive receiver), at a certain wind speed, then a high amenity applies to the whole of the wind farm, and that wind speed becomes the fixed wind-speed threshold for post-construction noise assessment.

If predicted sound levels become higher (because the turbines are up-sized), then the average difference between background levels and predicted levels would increase confirming, undeniably, that a high amenity applies to the wind farm.

If the wind farm's acoustician has not applied this step-by-step process, they are not complying with NZS law.