

**SECONDARY NOISE LIMITS – ALTERNATIVE VIEW**

(Clr Warren Davidson)

*NB - The Hearing Commissioners have been in agreement on all issues except for the Secondary Noise clause issue and I have accepted the option to contribute an alternate view. This is set out below.*

**1. THE ISSUE.**

- 1.1 The Geographic formation of the Tararua Range at the TRHE site gives the potential for differential wind conditions – the wind can be strong enough to operate the turbines and at the same time be calm at neighbouring residences at lower altitudes.
- 1.2 Generally, wind occurs at both wind turbines and residences at the same time which mitigates turbine noise. This is not always the case. This is acknowledged by the Standard (NZS6808:1998) and provision may be made for Secondary Noise Limits.

**2. PREVIOUS DECISION/PRECEDENT.**

- 2.1 Mr Hunt in his supplementary evidence (para 22) in response to the question - Are you aware of any other wind farms having used a different standard? - referred to two instances (Gebbes Pass and West Wind) but did not consider the examples an appropriate basis for imposing a lower noise limit on TRHE.
- 2.2 NZ Windfarms Ltd referred in submissions in reply (para 62 p11) to an Environment Court decision (Motorimu Wind Farm v Palmerston North City Council (W067/08) (Motorimu) in relation to another matter which brought to my attention the following clause in that decision;

*(o) Operational Noise (Quiet Night time) (Turbines).*

*When background sound conditions between the hours of 10 pm and 7 am the following day are at or below 25dBA L95 determined from the appropriate regression curve without the interference of the wind farm, and when mean wind speed at a representative location for the dwelling is less than 1.5 m/sec measured at a height nominally of 3 metres above ground-level, then noise from the wind farm shall not exceed 35 dBA L95 when measured at the notional boundary of dwellings existing and permitted at the date of this consent (excluding any dwelling on the Wind Farm site and excluding any dwelling for which the consent holder has reached agreement with the land owner).*

**3. BASIS FOR IMPOSING SECONDARY NOISE LIMIT.**

- 3.1 NZS6808:1998 is the standard by which objective information can be recorded to give a basis for decision making. In my view judgement is required as to the significance of the effect and when it should reasonably apply.

**4. EVIDENCE.**

- 4.1 Appendix J – Assessment of Environmental Noise effects Malcolm Hunt Associates describes the method and results of Ambient Sound Level Monitoring and wind speed and direction data, and includes:

- Table 3 including the Start/finish dates.
  - Poff - Sunday 14 Sept 08 to Saturday 27 Sept 08
  - Day - Sunday 28 Sept to Wed 15 Oct 08
  - Wind Rose - Figures 5 and 6 are of 12 month (1992-1993) wind speed and direction data and August to October 2008 respectively.
  - Figure 22 Day residence Scatter Graph and regression curve of ambient sound level All wind directions.
- 4.2 Mr Lloyd and Mr Day gave evidence that showed the regression curve is not representative of the ambient L95 sound levels measured in the range 6m/sec to 10 m/sec which is the critical range, when differential wind conditions may occur. I accept that the regression curve is calculated as specified by the NZ Standard. I also accept that the regression curve has limited relevance in the critical range of 6 m/sec to 10 m/sec.
- 4.3 In my view the wind rose showed that the potential differential wind conditions are common - especially West North West direction of relevance to the Day property.

### **5. RECORDING SITE.**

- 5.1 During the hearing submitters commented on the suitability of the Poff residence as a sound recording site. On inspection of the Poff/Stewart/Grassick properties it became clear that the sound environment varied significantly due to proximity to the road and trees around the properties. In summary submitters said using the data collected from the Poff residence would not be a fair representation of the environment and I agree with that position.

### **6. HOW AND WHEN SHOULD A SECONDARY NOISE LIMIT APPLY.**

- 6.1 Mr Hunt addressed the question – Are there grounds for setting a standard other than NZS6808 such as the use of a secondary standard or something else?
- 6.2 Mr Hunt replied in his supplementary evidence (paragraph 10) that “NZS6808:1998 refers to the possibility of setting wind farm noise limits at less than the “normal” 6808 limit of “40 dBA or the average background sound level plus 5 dB, which ever is the higher. Unfortunately NZS6808:1998 provides no criteria as to how or when a lowered limit should reasonably apply”.
- 6.3 Mr Halstead (Accusafe peer review of AEE p10) noted “Secondary Noise Limits have been imposed where monitoring has indicated that there is a disparity between the wind speed at the wind farm and wind conditions at the residences”.
- 6.4 Mr Halstead noted that monitoring in the NIA does not indicate that such disparity exists.
- 6.5 Mr Lloyd observed in questioning that both sound and weather monitoring at the receiving site would be required to identify such a disparity.

**7. CONCLUSION.**

- 7.1 In my view the relevant evidence of sound recording is limited (14 -18 days).
- 7.2 Testing did not include weather testing to identify whether the crucial differential conditions occur, and if they do, if it is for a significant amount of time.
- 7.3 Sound recordings to date do not adequately demonstrate the range of background sound levels that exist in the area in a wide range of weather and seasonal conditions.
- 7.4 For these reasons I felt a Secondary Noise Limit condition is appropriate [clause o) Motorimu Environment Court] and should be included in the Conditions.
- 7.5 I also think further comprehensive wind and weather testing is required to demonstrate if significant quiet background sound levels do occur and, if so, the Secondary Noise Limit should apply.