

**BOARD OF INQUIRY**

**HAUĀURU MĀ RAKI WIND FARM PROPOSAL**

In the matter of the Resource Management Act 1991

And

In the matter of resource consent applications by Contact Wind Limited in respect of the Hauāuru mā raki Wind Farm Proposal

And

In the matter of notices of requirement and a resource consent application by Contact Energy Limited for transmission infrastructure related to the Hauāuru mā raki Wind Farm Proposal

---

**REBUTTAL EVIDENCE OF NEVIL IAN HEGLEY**

---

**Counsel Instructed:**  
**Trevor Robinson**  
Wellington

Tel 64-4-472 1755. Fax 64-4-472 1766. PO Box 8018 Wellington  
[trobinson@xtra.co.nz](mailto:trobinson@xtra.co.nz)

**Solicitor Acting:**  
**H Rosemary Dixon**  
Contact Energy Limited

Telephone 64-4-462 1284. PO Box 10742, Wellington  
[rosemary.dixon@contact-energy.co.nz](mailto:rosemary.dixon@contact-energy.co.nz)

## **Introduction**

1. My name is **Nevil Ian Hegley**. I am the Principal of Hegley Acoustic Consultants.
2. I refer the Board of Inquiry to the statement of my qualifications and experience in my evidence in chief. I reaffirm my commitment to comply with the code of conduct for expert witnesses in the Environment Court.
3. The purpose of this brief of evidence is to respond to the evidence of Lester Wright, Howard Spencer, and Joseph Partridge as far as those briefs relate to noise effects.
4. I address the evidence of these submitters in turn below.

## **Lester Wright and Howard Spencer**

5. I have read the brief of evidence of Mr Wright and Mr Spencer relating to noise effects. At section 7 of his evidence, Mr Wright states:

“Farm owners and their employees choose a farming career for a variety of reasons, not least for providing a “farming lifestyle” for themselves and their families. The presence of the turbines in such close proximity will diminish the quality of the work and lifestyle environment on Sunset. Shadowing, flicker and noise will all be at unacceptable levels when experienced closer to the boundary of the consented land. This can only be addressed by removing the turbines from the boundary.”
6. Similarly, at page four of his evidence, Mr Spencer states:

“The presence of turbines at such close proximity diminishes the environment at Sunset. Shadowing, flicker and noise will all be at unacceptable levels experienced closer to the boundary. This can only be addressed by removing the turbines from the boundary and we request a separation distance of 1.0km so that the effects are contained within the consented area.”
7. From these comments it appears the concern is a daytime noise issue rather than one of sleep disturbance as the evidence relates to the site boundary.

Further the concern seems to be one of noise intrusion for someone on the farm well clear of any dwelling and relates to audibility rather than a specific noise level.

8. The noise designed for is set at a level as measured within the notional boundary<sup>1</sup> of any dwelling that will allow undisturbed sleep and this level has been adopted as a 24 hour noise control rather than increasing the level by 5 – 10dBA during the daytime as would normally be expected for any noise generating activity. This approach ensures the noise level remains within a reasonable daytime limit within approximately 1km of the dwelling. The exact distance will obviously vary depending on the distance to the closer turbines.
9. Noise levels are not generally controlled at the site boundary of a farm as the farm itself is normally considered to be an industrial type of use and as such any controls at the boundary would need to reflect the likely land use. In the extreme, if a level was to be considered it would need to reflect the type of use of the land and a level of 60 – 65dBA L<sub>10</sub> would be the most likely level to be adopted. Such levels would need to be considered in order to cater for farming activities, such as hay making and the use of tractors. The proposed wind farm would achieve these levels at the site boundary.
10. Further, any farming activity likely to be undertaken near the site boundary is most likely to mask the noise from the proposed wind farm. It should also be kept in mind that in calm conditions when the background sound is at its lowest the turbines would not generate any noise as they need a wind of at least 4m/s before there is any potential noise from them.

### **Joseph Partridge**

11. I have read the brief of evidence of Mr Partridge relating to noise effects. At paragraph 38, Mr Partridge refers to my evidence in chief. Mr Partridge states my evidence does not address “construction noise in and around the proposed site of the Orton switching station”, and that my findings “seem to be limited to the Wind Farm site of the project only”.
12. I had overlooked this specific site and have now undertaken calculations to determine the construction noise at this house. Assuming no screening of the house (which is just over 350m from the closest point of the substation site) the predicted construction noise will be typically 47dBA (L<sub>eq</sub>) when assuming a medium size excavator (such as a Cat 320) a compactor and 2 –

---

<sup>1</sup> The notional boundary is defined in NZS6801:1991 Measurement of Sound as a line 20 metres from the facade of any rural dwelling or the legal boundary where this is closer to the dwelling.

3 trucks on site. All other activities, such as cranes to lift equipment and fabrication, will be quieter than the earthworks phase of the development. A level of 47dBA ( $L_{eq}$ ) is well within the District Plan minimum requirement of 70dBA ( $L_{eq}$ ) for construction noise.

13. Mr Partridge has commented that my findings “seem to be limited to the Wind Farm site of the project only”. In paragraphs 24 – 28 of my evidence in chief I address the potential noise from the quarry, in paragraphs 119 – 125 I address noise from power transmission and in paragraphs 109 – 116 I address traffic noise. I am not aware of other significant noise source that may occur that would alter my findings.

14. At paragraphs 39 to 40 of his evidence, Mr Partridge refers to my evidence in chief in relation to noise from the construction and operation of the transmission lines (taken to mean potential noise from the lines, towers and insulators). At paragraph 120 my evidence states that “that closest house to a proposed transmission tower is approximately 200m away”. I then state at paragraph 121, in reference to noise from the construction of the towers:

“Assuming the noisiest of this equipment the level is unlikely to exceed 55dBA ( $L_{eq}$ ) at the closest house.”

15. My evidence in chief goes on to state at paragraph 123:

“Under normal conditions the lines themselves would be silent once in use. However, there is the potential of wind noise and noise from corona and surface electrical discharging ... I have undertaken field tests of existing lines under conditions favourable for the higher levels of both corona (with light rain) and wind generated noise (wind above about 15m/s). The highest level I was able to record was 42dBA from corona and 43dBA from wind (both  $L_{10}$ ) when within approximately 20m of the lines. Thus, at about 200m the noise level will be below 25dBA  $L_{10}$  and well below a level that is likely to be a noise nuisance for neighbours.”

16. Mr Partridge states at paragraph 40 of his evidence that:

“...my dwelling will be much closer than the theoretical 200m, thereby suggesting that the noise from the lines will be a noise nuisance for anybody occupying the house.”

17. I did not include Mr Partridge’s house in my original analysis and have now calculated the noise that would be heard at his notional boundary. I

understand the existing line is approximately 280m from his house and the closest existing tower (tower 65) is approximately 290m from his house. The proposed line would be 50m from the house and the closest new tower (Dev 05) approximately 90m from the house.

18. In ideal conditions to generate noise, corona noise could be up to 28dBA and wind noise up to 34dBA (both  $L_{10}$  values) within his notional boundary. Although only generated under specific conditions and in the case of the wind there will be significant masking noise due to the wind effects around the house, these levels are well within the District Plan noise requirements for any night time activity. I consider such noise levels to be reasonable and appropriate.

**N I Hegley**