

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 DAVID THOMAS HUNT
RESPONDING TO EVIDENCE OF SB COX**

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Introduction

1. My name is David Hunt. I am a director of Concept Consulting Group Ltd, a Wellington-based firm specialising in the energy sector.
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 Mr Sean Cox, filed on behalf of Tainui Awhiro, as it relates to the economic viability of wind farms.
4. Mr Cox's evidence includes discussion of:
 - (a) potential alternatives to the HMR wind farm, which he considers to be preferable; and
 - (b) the relationship between wind generation, times of peak demand, and hydro generation.
5. I discuss these issues in turn below.

Alternatives to the HMR wind farm

6. Mr Cox's brief refers to a number of potential alternatives to the HMR wind farm which he raised in evidence at the hearing for the WEL Networks Te Uku wind farm. He also details two specific options, being an "*actual wood power plant design near Te Uku substation*", and "*new technology solar generation*". Mr Cox concludes that the HMR wind farm "*is a pointless and unnecessary development. It has been overtaken by newer technologies and is as obsolete as the horse buggy.*" Mr Cox implies that the alternatives he presents would be more efficient and of less cost to Contact than the HMR wind farm.
7. As discussed at paragraphs 26 to 31 of my evidence in chief, Contact has a strong incentive to ensure it does not proceed with a higher cost project ahead of a lower cost project. The costs of such an error would fall on Contact's shareholders. As I stated at paragraph 31 of my evidence in chief, it is reasonable to expect that Contact would not have proceeded with the application for resource consents for the HMR project if it considered that there were better alternatives (such as those discussed by Mr Cox) that could deliver materially lower long run electricity production costs.
8. In terms of the particular alternatives to the HMR project mentioned by Mr Cox, it is difficult to offer specific comments because of the lack of detail in his evidence. However, I would note that photo voltaic solar generation has traditionally been among the more

expensive options available. For this reason, it accounts for a very limited share of total generation, both in New Zealand and overseas, other than for sites not connected to the main grid.

9. In relation to wood-fired generation, again it is difficult to comment without more detail on the specific project he is referring to. However, I would note that wood-fired generation requires a secure, low cost, and long-term supply of woody material to be viable. Proximity to generation plant is also important, due to the cost of transporting fuel with a relatively low energy content (fresh harvested wood has around 1/3 of the energy content of Waikato coal on a weight basis, and even less on a volumetric basis). For these sorts of reasons, despite New Zealand having a sizeable estate of plantation forest, wood-fired generation currently accounts for little more than 1% of total electricity supply.
10. Moreover, I note that Mr Cox's statement that two 50MW wood power plants "*would be a superior replacement*" for the HMR wind farm is plainly incorrect. Even assuming 100% reliability, which is physically impossible, the maximum output of 100MW of generating capacity is 876 GWh per year. That compares to Contact's expected output from the HMR wind farm which, as stated at paragraph 19 of my evidence in chief, is an average of 1,380 GWh per year. As such, two 50 MW wood-fired plants could not replace the electricity that would be generated by the HMR wind farm.

The relationship between wind and hydro generation

11. Mr Cox asserts that wind generation is not a suitable back-up to hydro generation in New Zealand, because times of poor inflows to hydro lakes often coincide with periods of light winds. In particular, Mr Cox states that "*the linkage between dry periods and light winds*" is "*settled...beyond any rational dispute*". As stated in my evidence in chief (at paragraph 33) my view is that while a correlation between low wind generation and hydro droughts cannot be ruled out, there is limited data available on the issue. I do not consider that such a correlation could be deemed "*settled beyond any rational dispute*".
12. Moreover, I would reiterate that Contact has very strong incentives to consider any such correlation when making its investment decision. If Mr Cox's view were correct, the HMR wind farm would tend to generate more in periods of lower wholesale electricity prices (i.e. when water was abundant) and vice versa. This would harm the economics of the project. In short, it is extremely unlikely that Contact would proceed with the project if the effects claimed by Mr Cox were material, all other things being equal.