

BEFORE THE BOARD OF INQUIRY

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of applications for resource consent and notices of requirement by Transpower New Zealand Limited for the North Island Grid Upgrade Project

**STATEMENT OF EVIDENCE OF STEVEN TAYLOR IN REBUTTAL
ON BEHALF OF TRANSPOWER NEW ZEALAND LIMITED
(Environmental constraints identification during transmission option analysis,
Pakuranga and Brownhill Road Substations and cable
route options)**

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Introduction

1. **MY** name is Steven Taylor. I wish to present rebuttal evidence to the statements of evidence of:
 - (a) Mr Christopher Freke, on behalf of Manukau City Council (**MCC**);
 - (b) Mr Matthew Richards, on behalf of Auckland Regional Council (**ARC**);
and
 - (c) Mr Randal McKenzie and Mr Mark Spring, on behalf of Brownhill Road (Whitford) Residents.
2. I address the evidence of each submitter below.

Mr Christopher Freke (MCC) (Submission number 0861)

3. **AT** paragraph 14 of his revised statement of evidence, Mr Freke states that Transpower has given inadequate consideration or weight to avoiding or mitigating environmental effects of the proposal.
4. **MR** Freke considers that the consideration of environmental impacts of transmission infrastructure is deficient, stating in paragraph 18 of his revised statement of evidence that:

*"There has been, in my view, no **initial** consultation or consideration around the environmental impacts of the transmission infrastructure required to deliver the above objectives. Potential trade offs that advance environmental objectives ahead of operational cost ones were never meaningfully or openly assessed."*

5. I disagree with this comment, as it ignores Transpower's analysis between various transmission options, to which I contributed in 2004, prior to embarking on the ACRE process for the overhead line. This analysis is reported in a document entitled "*Security of Supply into Auckland - Assessment Methodology for Alternative Solutions*", provided publicly in October 2004, which is attached to this statement of evidence at **Appendix 1**. The report outlines the process

undertaken in respect of transmission option identification and clarifies that "environmental impact" was one of five assessment criteria used to identify a preferred transmission option.

6. **WHEN** I started work at Transpower in March 2004, I was involved in a comprehensive analysis of the various transmission options, with the express purpose of ensuring environmental considerations were adequately factored into system vision investigations. Prior to this time, Transpower had commissioned Boffa Miskell to assist in developing environmental assessment criteria that could be applied to assist the identification of a preferred transmission option. This report is "*Transpower - Grid Vision - Environmental Assessment of Upgrading Options*", September 2003, which is attached as **Appendix 2**. Four core principles were identified in section 2 of the Boffa Miskell report. These principles were:

- (a) Principle 1: The overall Grid Vision process be guided by the optimisation of transmission line corridors.
- (b) Principle 2: For significant upgrades of line capacity, a "greenfields" approach be undertaken to identify the optimal corridor.
- (c) Principle 3: Key routes should be defined and secured for the long-term, whatever the type of upgrade planned for the immediate future within those routes.
- (d) Principle 4: Emphasis should be given to transmission corridors with high visual absorption characteristics.

7. **PRINCIPLE 1** of the report acknowledges that, when comparing the 220kV, 330kV, 400kV and 500kV options, the more significant environmental impacts are likely to arise from the number of lines within a corridor rather than the height/size of towers along any particular transmission line. For example, two or more parallel lines would generally have more impact than one line with higher towers.

8. **MR** Boyle's team and myself had regard to this principle when considering transmission options and in particular whether it would be appropriate to establish a single transmission route to service Transpower's core transmission needs,

rather than obtaining designations or consents for multiple lines and routes with all of the consequential costs and risks.

9. **PRINCIPLES** 2, 3, and 4 highlighted the need to develop a model that would enable site specific environmental effects associated with a particular transmission option to be avoided, remedied or mitigated, and thus provided the context for the development and subsequent application of the ACRE model, the process for which I have covered in my evidence in chief.

10. **MR** Freke's comment also fails to recognise the environmental analysis presented publicly at the outset of the consultation exercise and detailed in the October 2004 report "*Security of Supply into Auckland - Assessment of Alternative Solutions*". When considering the environmental impact of the 220kV, 330kV, 400kV and 500kV options, this report summarises, on page 33:

"The key assessment criteria that differentiate between system voltage options are therefore economic and environmental.

Of all the possible system voltages, transmission augmentation at 400kV is preferred because:

...

Over the long term, the 400kV provides the lowest environmental impact of all options because it requires one and two less line routes than the 330kV and 220kV options respectively, (at 2040) and is lower height, size and weight than the 500kV solution."

11. **THIS**, and other reports released by Transpower in October 2004 were intended to summarise preceding analysis undertaken during the system vision investigations.

12. **SUBSEQUENT** to this, and as is explained in Mr Boyle's statement of evidence at paragraph 52, the 2006 revision to the Government Policy Statement on Electricity Governance confirmed the extent to which environmental effects of new lines should be considered when approving economic expenditure under the Grid Investment Test. In particular, clause 88E of the GPS which specifically refers to consideration of the environmental effects of new lines, requires the Commission to "*the extent the Commission considers the environmental effects of new lines proposed by Transpower in a grid upgrade plan, it should also take into account*

any longer term benefits that larger capacity lines may provide by avoiding multiple smaller lines."

13. **AT** paragraph 18, Mr Freke also appears to be overlooking Transpower's response to the comparatively more recent management of environmental issues that resulted in such developments as:

- (a) adoption of more expensive GIS technology at Brownhill; and
- (b) the determination of underground cable routes and their overall lengths.

14. **ALL** of these decisions are in effect mitigation measures and have increased the costs of the Upgrade Project from that which would otherwise be accrued if the Upgrade Proposal was considered on merely economic grounds.

15. **MR** Freke goes on to note in paragraph 50 of his revised statement of evidence, that:

"the main issues raised by Council in its submission can in all likelihood only be addressed by either increasing the cost of the project and/or changing some operational parameters to a degree. This means trading off project costs with economic and environmental benefits to the community. These include:

- (a) *The impact of the proposed towers and lines which could be addressed by a combination of use of less intrusive 200kV technology and increasing the length/use of the underground cable.*
- (b) *The open AIS substation at Pakuranga which could be addressed by use of an enclosed GIS substation.*
- (c) *Increasing the extent of the proposed easement which would more properly reflect the actual zone of direct effect in terms of future limitations on use, but which would potentially add property compensation costs."*

