

TRANSPower NEW ZEALAND LIMITED

# Submission to the Electricity Commission on the 2009 Electricity Demand Forecasts

*January 2010*



**TRANSPower**



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## **1. Introduction**

### **1.1 Purpose of this document**

This is Transpower's submission in response to the Electricity Commission's consultation document *2009 Electricity Demand Forecasts*.

## **2. Comment**

### **2.1 Content**

Transpower thanks the Electricity Commission for the opportunity to submit feedback on its 2009 electricity demand forecasts.

Given that the Commission has not posed specific consultation questions, Transpower is providing feedback by commenting on particular sections of the demand forecast document.

## **3. Discussion**

**Para 1.1.6** – It would have been useful to have the peer reviews of the methodology applied in the development of the demand forecast available at the time of the consultation, since they would have informed the consultation.

**Para 1.1.8** – Given the fact that GXP level forecasts are an essential input assumption to the grid planning process, and the requirement to use the GPAs described in the SoO in the application of the Grid Investment Test, Transpower believes that GXP demand forecasts deserve as much attention, if not more, than the national and regional energy forecasts. That said, Transpower acknowledges the EC's position that appropriate adjustments can be made to the forecasts when applying the Grid Investment Test.

**Para 1.1.13** – It would be useful to have the power systems analysis assumptions around peak demand published as part of the general GPA consultation.

**Section 3** – Transpower agrees with the approach adopted by the Commission to develop the national energy forecast.

**Section 4** – Transpower generally agrees with the approach the Commission has adopted to derive regional energy forecasts. However, we are concerned that the step loads shown in table 3 are not representative of the full range of step load changes. This is especially relevant to the derivation of the prudent peak demand forecast, which should include not only the "expected" step load changes, but also a

reasonable assessment of the potential changes within the confines of the 10 per cent PoE methodology.

**Para 4.4.4** – The arbitrary subtraction of step load increases from other GXPs has the potential to distort the forecasts and reduce their relevance when used in detailed grid planning.

**Para 5.2.2** – Transpower has some concerns that historical years have been excluded from the peak demand forecasting models without fully exploring the impact of this exclusion. The data set used in the models is very short as it is and further reducing it may reduce the efficacy of the models. As stated previously, Transpower does not agree that 2003 should be excluded, as the demand savings campaign did not start until August 2003. Peak winter demand historically occurs during June and July. Transpower would also welcome some further information about the rationale for excluding summer peak data from the models.

**Para 5.2.3** – As commented by Transpower in previous GPA submissions, a discussion on the choice of the exponential curve would be useful. Peak forecast distributions have been created in part by using “an estimated 20 per cent chance of exceptional growth (1.0 per cent per annum higher) over a five year period.” It would be useful to have a discussion of the justification for choosing 1.0 per cent per annum higher rather than some other percentage value. In addition, Transpower questions the need to include such a concept. The modelling is attempting to capture the uncertainty attached to underlying growth. The prudent peak is capturing those cases where the value is not exceeded 90 per cent of the time. Thus, the prudent peak is designed not to capture exceptional growth. It seems inconsistent to design a model not to capture exceptional growth and then cater for exceptional growth in the variability.

**Para 5.3.1** – Whilst Transpower accepts there is a need to effectively smooth out spurious peaks, using the average of the top 50 historical peaks will not necessarily achieve this. Load shifting between GXPs will often occur, resulting in abnormally high peak loads. Even averaging the top 50 peaks will result in an unrealistically high peak. Another approach could be to “correct” the historical data and the use the absolute peak.

**Para 5.3.4** – Transpower notes that diversity factors have the potential to vary significantly from year to year and this has the potential to distort regional peak load forecasts. Transpower is currently investigating possible ways of minimising this distortion.

**Para 5.4.3** – Transpower draws the Commission’s attention to page 23 of the independent peak demand forecast produced by Covec Limited as part of the LSI Renewables Project<sup>1</sup>. It states:

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<sup>1</sup> <http://www.electricitycommission.govt.nz/pdfs/opdev/transmis/gup/2009/LSI/AttachmentH.pdf>

*“The aluminium smelter at Tiwai Point operates under the Tiwai Point Connection Contract (TPCC). Under this agreement, New Zealand Aluminium Smelters operates at a maximum of 610MW until the end of 2012 (expiry of TPCC). This constrains the smelter as it can utilise 620MW at full cell capacity. By replacing transformers the smelter can potentially use 640MW. NZAS hopes to increase load to 620MW by Jan 2009 and 640MW by Jan 2011.... Our expected and prudent forecasts assume the 2009 summer peak will ramp up 25% and 50% respectively of the way to 619.4MW. It is forecast to reach the 620MW limit in winter 2009 and 640MW and 635MW in the summer of 2011 and 2012 for the prudent and expected forecasts respectively.”*

**Embedded Generation** – Transpower supports the adjustments made to take account of embedded generation.

**Step Load Changes** – From the information provided it would appear that only the step changes described in Table 3 have been included in the expected and prudent peak demand forecasts. Whilst Transpower accepts that some evidence of commitment of new loads should be provided for inclusion in an expected forecast, we believe that there should be a lower hurdle for step load changes included in a prudent peak demand forecast. Planning for only the certain and committed step load changes will risk understating the requirements of transmission at a regional and GXP level.

A prudent forecast should include a plausible estimate of potential step load changes that could occur over the planning horizon. This is the approach that has been adopted by Transpower in several of its Grid Upgrade Plans.

**Para 5.4.15** – Transpower agrees that it is sensible for the prudent forecast to revert to mean growth rates after a period of time. Five years has been chosen by the Commission, as this represents the construction timeframe for new build. Transpower suggests that seven years may be more appropriate, given that is the current lead time for new build transmission projects.

As a general point, Transpower believes that the GXP forecasts could be improved considerably by incorporating customer feedback as part of the demand forecasting process.