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6 November 2009

Kate Hudson  
Electricity Commission  
PO Box 10041  
WELLINGTON 6143

Dear Kate

**Re: 2009 Grid Planning Assumptions**

Thank you for the opportunity to submit feedback on the Electricity Commission's proposed 2009 grid planning assumptions (GPAs). Our response to the questions posed in the consultation document is attached.

In addition to our response, we make the following key points:

**Demand forecast**

We note that the demand forecast presented in the document is confined to the national consumption forecast. Whilst important, this only forms part of the picture in terms of forecast demand and we would welcome the opportunity to assess both the regional modelling of consumption and the peak demand forecasting methodologies used to provide the forecast inputs into the generation modelling.

**The role of generation scenarios**

We are of the view that statements of opportunity should be focussed on medium-term identification of looming power system issues for transmission, generation and demand-side proponents. To this end, we question the requirement for the Commission to produce long-term market development scenarios of specific generation types, sitings and commissioning dates. Rather, the Market Development Scenarios should be defined as future paths of the *drivers* of such investments, e.g. capital and operating (including fuel) building block assumptions for use in generation expansion modelling.

If you would like to discuss our submission in more detail, please contact Siobhan Procter on (04) 495-7191 or (021) 228-5429 or e-mail [siobhan.procter@transpower.co.nz](mailto:siobhan.procter@transpower.co.nz) .

Yours sincerely

Richard Fletcher  
Regulatory Strategy Manager

6 November 2009

## **Transpower's Response to the Electricity Commission's 2009 Grid Planning Assumptions**

<b>Question</b>	<b>Response</b>
<p><b>Q1</b> - Do you agree with the general approach of relating future demand (at a national level) to projections of key drivers such as population, GDP, the number of households, and electricity prices?</p>	<p>Transpower agrees with the general approach taken of using econometric models that relate historical demand to population, GDP, and electricity prices. Once the relationships are estimated from the models it is reasonable to use projections of population, GDP, and electricity prices from independent sources to estimate future demand.</p> <p>Whilst there is obviously a requirement to forecast demand consumption (GWh) at a national level, Transpower would welcome increasing the focus on developing robust methodologies for forecasting peak demand at the GXP level.</p>
<p><b>Q2</b> - What possible scenarios should be considered as part of the demand forecasting (such as the potential impact of electric vehicles, electricity efficiency for example)?</p>	<p>Transpower considers possible scenarios should include not only the potential impact of electric vehicles but also the likely impact of heat pumps, climate variability, distributed generation uptake, demand side participation and new technologies/ smart grid.</p>
<p><b>Q3</b> - What relationships exist between electricity consumption and consumption of other energy types?</p>	<p>Whilst there may be relationships between electricity consumption and consumption of other energy types (especially in the future), it is unlikely to be captured by the use of the current econometric models used by the Commission to produce its demand forecasts. We would suggest the use of scenarios to capture the potential change in relationships.</p>
<p><b>Q4</b> - Do you have any other general comments or observations on long term demand forecasting?</p>	<p>The NZIER review of the Commission's forecast model concludes that the relationship between residential demand and GDP, and the relationship between residential demand and population appear to be different in recent years compared to earlier years. NZIER also concludes that the relationship between commercial and light industrial demand and GDP appears to be different in recent years compared to earlier years. Transpower feels there would be benefit in further exploring the underlying causes of this change to inform the forecasting process.</p>
<p><b>Q5</b> - Do you agree with the information presented in Table 3?</p>	<p>Transpower suggests that this table be reviewed and revised in partnership with the plant owners to ensure the assumptions are reasonable.</p>
<p><b>Q6</b> - Do you have any comments on the reports by PB "Thermal power station advice" and the "Thermal power station advice – Fixed and variable O&amp;M costs"?</p>	<p>These reports appear to be reasonable. However, Transpower is interested in the plant owners' view of the information provided in the reports.</p>

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Question	Response
<b>Q7</b> - Do you consider that the Commission should include other renewable technologies? If yes, please state which technologies and provide reasons for their inclusion.	Transpower would be interested in some discussion of large scale solar in New Zealand or smaller scale solar at the distribution level, because of technological advances which have increased the likelihood that solar energy will be more widely utilised in the future.
<b>Q8</b> - Do you agree with the gas availability assumptions?	The assumptions around gas availability appear to be reasonable for the purpose of developing a range of scenarios for information only. Transpower would encourage the Commission to seek feedback on the assumptions from key players in the gas sector, particularly given the recent increase in drilling activity.
<b>Q9</b> - Do you agree with the coal availability and price assumptions?	The assumptions around coal availability appear to be reasonable for the purpose of developing a range of scenarios for information only. Transpower would encourage the Commission to seek feedback on the assumptions, particularly the price assumptions, from key players in the coal sector.
<b>Q10</b> - Do you have any comments on the report by PB "Coal price and availability study"?	No.
<b>Q11</b> - Do you consider the modelling of the HVDC link in GEM reasonable? If not, why not?	<p>Whilst Transpower may try to achieve additional capacity, the remaining half of Pole 1 is not expected to be restored permanently. Total capacity of the HVDC link is expected to be 700 MW until Pole 1 is decommissioned in late 2011. Pole 3 should be prudently modelled as available from early 2012.</p> <p>The earliest that Stage 3 could be available is 2016 not 2014.</p>
<b>Q12</b> - Do you consider that the 2009 scenario stories cover a range of credible futures? Should the Commission add/remove some scenarios?	<p>There are potentially several thousand scenarios that could be modelled to encompass the range of futures over the next forty years and from these there may be five that could be selected to represent a credible range, although even that is questionable.</p> <p>Typically, scenarios need to relate to the question that is being addressed by their development. In this case it is not clear that the scenarios proposed do this. Given the manner in which the scenarios are utilised in investment decision making it seems appropriate for a wider, more complete, set of scenarios to be developed. A more complete scenario set might include a greater number of scenarios that alter input drivers logically between scenarios. Admittedly, this would affect the tractability and computational requirements of analysis but would produce a benefit in the form of a wider and more comprehensive range of scenarios.</p> <p>Another issue with the scenarios as they stand is that they have been produced relative to an expected demand forecast. Whenever we are required to run sensitivities on other</p>

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<b>Question</b>	<b>Response</b>
	demand forecasts, we have to redo the generation scenarios and we move from having five scenarios to 15 (assuming low, medium and high). One option to address this problem is to develop combined generation and demand scenarios.
<b>Q13</b> - Do you agree with the Commission's approach to equally weight all the scenarios? If no, please provide reasons.	Transpower has voiced its concerns about the link between the market development scenarios (MDS) and the grid investment test (GIT), and the use of weightings, in several previous submissions. The key concern is that the use of the MDS in the GIT infers a level of certainty to the MDS that could never exist considering that they are treated as essentially forecasts of the future. The five MDS fail to capture the true bounds of uncertainty beyond five years into the future and, by weighting them, the actual bounds are narrowed further.
<b>Q14</b> - Do you agree with the key drivers assumptions? If not, please provide reasons.	See responses to Q12 and Q13.