



# MAJOR ELECTRICITY USERS' GROUP

30<sup>th</sup> August 2016

Hunter Humphries  
Commercial Manager  
Transpower  
By email to [WUNIVoltageManagement@transpower.co.nz](mailto:WUNIVoltageManagement@transpower.co.nz)

Dear Hunter

## Waikato and upper North Island Voltage Management

1. This is a submission by the Major Electricity Users' Group (MEUG) on Transpower's "Waikato and Upper North Island Voltage Management Long-list consultation" July 2016 (WUNIVM).<sup>1</sup>
2. MEUG members have been consulted in the preparation of this submission. This submission is not confidential. Some members may make separate submissions.
3. As mentioned on the phone last Friday Transpower are to be congratulated on a very readable and comprehensive report. We have only a few responses below because there are so many moving or about to be modified elements. This submission may be short but that does not reflect the importance of the WUNIVM investigation and ultimate decisions. We look forward to staying engaged with and participating in future direct WUNIVM consultations and other relevant policies that intersect with this investigation.
4. Those other policies include (but not limited to):
  - a) TPM review.

The current problem, where parties that are not beneficiaries or exacerbators of the need for expenditure related to this WUNIVM investigation will currently pay a share of the costs, needs to change.
  - b) Distribution pricing.

Adoption of cost-reflective and service-based distribution pricing would ensure appropriate incentives to facilitate better investment in operating decisions by users' of transmission services. Those decisions will affect management of future grid voltage and thermal constraints. Poor distribution pricing will lead to less efficient outcomes.

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<sup>1</sup> Refer <https://www.transpower.co.nz/waikato-and-upper-north-island-voltage-management-investigation> and URL [https://www.transpower.co.nz/sites/default/files/projects/resources/Waikato%20and%20Upper%20North%20Island%20Voltage%20Management%20long-list%20consultation\\_2.pdf](https://www.transpower.co.nz/sites/default/files/projects/resources/Waikato%20and%20Upper%20North%20Island%20Voltage%20Management%20long-list%20consultation_2.pdf).

c) Electricity Demand and Generation Scenarios (EDGS).

Yesterday the Ministry of Business Innovation and Employment (MBIE) published the inaugural EDGS.<sup>2</sup> We understand that Transpower will in preparing an application for approval of a major capex proposal, should that be the process decided upon, will review the demand and peak demand assumptions used in the July 2016 WUNIVM investigation report in light of the EDGS.

MEUG has yet to consider in detail the EDGS report. From an initial read there are several instances where MBIE and Transpower note the recently observed trend of flat or even declining national demand. In New Zealand that trend was observed post the Global Financial Crisis (GFC) that started 2007-08. MBIE note:

“Recent downward trends in electricity demand per household were difficult to explain with existing data. The team will continue to explore new data sources to better explain these recent trends.”<sup>3</sup>

Transpower note:

“The effect in Auckland is stronger than in other regions as there has been little or no growth in peak demand in the past several years despite population and GDP growth and a cold winter in 2015.”<sup>4</sup>

“There remains a tendency – particularly in Auckland – to over-estimate the most recent years relative to observed peaks, which we will continue to monitor.”<sup>5</sup>

“As indicated above, there are certain areas of our modelling that we intend to review further in our next demand forecasting cycle. No forecasting methodology is perfect and we recognise the importance of constantly reviewing the performance of our forecasts in relation to new information.”<sup>6</sup>

There is an open question if there has been a structural change since the GFC in the drivers of electricity demand. We may ask MBIE to refresh the EDGS within the next 2 years to take into consideration another one or two years actual data to check if the relative influence of drivers affecting peak demand have changed. An updated EDGS within the next two years would give more confidence to the economics and justification of a WUNIVM major capex proposal.

d) Review of Input Methodology (IM).

Relevant IM topics under review by the Commerce Commission that may affect who might be potential providers of non-transmission components include treatment of emerging technology and related party transactions. Until that is clarified it may be that prospective suppliers of non-transmission components, for example retailers, may not have invested time and resources in considering business opportunities in any detail until the regulatory framework has been clarified.

e) The planned review next year of the Transpower Capex IM.

We refer to this review in response to consultation questions 12 to 14 below.

<sup>2</sup> <http://www.mbie.govt.nz/info-services/sectors-industries/energy/energy-data-modelling/modelling/electricity-demand-and-generation-scenarios/edgs-2016#assumptions>

<sup>3</sup> MBIE, Energy Modelling Technical Guide, August 2016, p 21.

<sup>4</sup> Transpower report published with EDGS, Transpower peak demand forecast updates, p3.

<sup>5</sup> Ibid, p8.

<sup>6</sup> Ibid, p12.

f) Review by Transpower of various contracting arrangements.

We refer to this in response to consultation question 4 below.

g) Extended Reserves regime implementation.

MEUG is unclear on the detail of how the new North Island extended reserves regime will be implemented. We have no particular aspects that may intersect with the WUNIVM investigation at this stage though until we know for sure how the extended reserves regime will be implemented we are taking a precautionary approach and are monitoring for any cross-topic issues.

5. Responses to questions in the consultation paper follow:

Question	MEUG response
<p>1. Do you agree with our assessment of need and project scope? Are there any other issues or considerations relating to the need or scope that we should incorporate into this project?</p>	<p>It is more likely than not that peak demand for transmission services in the WUNI regions will increase in the foreseeable future. Eventually something will need to be implemented (the option of forced rolling blackouts at winter peak in WUNI is not considered an option) once the current 350 MW of winter peak headroom between peak demand and N-G-1 dynamic voltage constraint is exhausted.<sup>7</sup> The current 350 MW of headroom is ~ 17% of 2016 expected winter peak demand.</p> <p>At an average increase in winter peak demand of 1% per annum the current N-G-1 dynamic voltage constraint level will not be exceeded by 2025. However this forecast is subject to uncertainties on growth in peak demand and the announced closure of the Rankine units at the end of 2022 leading to both dynamic and static voltage constraints being exceeded in winter 2023. Using Transpower's prudent (P90) forecasts N-G-1 dynamic voltage constraint is exceeded in winter 2021.</p> <p>Not only are there multiple scenarios with a range of when voltage limits will be breached there are also multiple solutions with different lead times to implement. MEUG welcomes the pro-active approach by Transpower as grid owner and as System Operator to investigate both voltage and thermal limits for WUNI and hence this consultation paper. MEUG notes consultation on thermal limits may be consulted on at a later date.<sup>8</sup></p>

<sup>7</sup> Transpower WUNIVM investigation report, July 2016, 350 MW headroom is read from the graph on p4.

<sup>8</sup> Ibid, p4 "The thermal transfer issues are currently under investigation within Transpower, and may lead to a similar consultation to this one in due course."

Question	MEUG response
2. Do you agree with our draft long-list of components? If not, what components should we include or remove?	-
3. This document serves as an invitation to provide information on non-transmission solutions. Any submission on this aspect should provide as much detail on the non-transmission solution as possible. Do you have any suggestions or proposals for non-transmission solutions to meet the need?	-
4. Do you have any suggestions for enhancing Transpower's grid support contract (GSC) product design? If so, please provide your reasons, based on the rationale provided in our GSC design features document at <a href="http://www.transpower.co.nz/grid-support-contracts">www.transpower.co.nz/grid-support-contracts</a>	MEUG has and will continue to engage in Transpower's draft Transpower Works Agreement project (TWA). <sup>9</sup> There may be aspects of refreshing the suite of existing contracts that will come under the umbrella of the TWA that could be considered for the GSC product design. If in MEUG's engagement on TWA we find any cross-over topics we will bring those to the attention of the WUNIVM investigation and GSC product teams.
5. Do you agree with our criteria for short-listing? If not, what criteria should we modify, include or remove, and why?	A new criteria could be added ensuring alignment of parties that benefit from or are the exacerbators of the need for any investment or payments by Transpower for WUNIVM also pay for those costs. Implementation of such a criteria is dependent on changes to the TPM; nevertheless we think it could be included even if only an aspirational criteria until such time as the TPM is amended. <sup>10</sup>

<sup>9</sup> Refer <http://www.meug.co.nz/node/746>

<sup>10</sup> This suggestion is consistent with a theme MEUG has previously submitted to Transpower on short-listing criteria that "The engineering focus of the criteria should be broadened to consider incentive mechanisms and financial robustness to Transpower", refer submission on North Taranaki Interconnection Investigation, 29<sup>th</sup> July 2015, p2, <http://www.meug.co.nz/node/713>

Question	MEUG response
<p>6. Do you think that the demand growth assumptions are appropriate for this project? If not, how could we improve them?</p>	<p>MEUG notes the expected winter peak demand growth rates are relatively high (1.2% per annum in UNI for next 5 years and 1.6% per annum for Waikato) compared to the last few years.<sup>11</sup></p> <p>MEUG will after further consideration of MBIE's inaugural EDGS published yesterday be able to take a more considered view.</p> <p>In addition once the Commerce Commission decisions on the review of Input Methodologies are published there will be more certainty for parties (i.e. retailers and EDB) that could invest in non-transmission products and they will then be able to advise Transpower of their investment plans and therefore the impact on net demand forecasts.</p> <p>And as we note in response to the following question demand for winter peak transmission services will also be affected on TPM and distribution pricing policies that are currently under review.</p>
<p>7. Do you think that, if the proposed removal of the DGPP and the RCPD charge from the TPM occur, net peak demand in the Upper North Island will be affected? If so, by how much?</p>	<p>MEUG will be interested to view the responses of other parties to this question in relation to UNI RCPD prices. We expect by the time Transpower start preparing a WUNIVM proposal to submit to the Commerce Commission by end of May 2018 that both transmission and distribution pricing for forward years will be clearer. Once those pricing policies are in place that will assist firm up expected winter peak demand forecasts.</p> <p>We are unclear why this question refers to removal of the DGPP. The proposed removal of the DGPP includes a requirement for Transpower to contract with existing parties that provide services to ensure grid limits are not exceeded. This seems clearly applicable for WUNI.</p>
<p>8. Do you have any more detailed motor load information for the Upper North Island and Waikato that would allow us to improve our modelling?</p>	<p>-</p>
<p>9. Are you aware of any other existing generation in the UNI that we should include in our analysis?</p>	<p>-</p>

<sup>11</sup> WUNIVM investigation report, July 2016, using data from table 7.1.

Question	MEUG response
10. Are you aware of any other dynamic reactive support sources that we should assume?	-
11. Do you think that the generation scenarios are appropriate for this project? If not, how could we improve them, especially with regard to our assumptions on generation that will be built at or north of Huntly?	-
12. Is our proposed analysis period to 2045 reasonable for this project?	Suggest Transpower review this date for the economics of reactive support options following any further analysis of the limits of reactive support discussed in section 7.2.3.  The Transpower Capex IM review by the Commerce Commission next year may consider this generic CBA (Investment Test) setting.
13. Do you think \$25,300/MWh is appropriate for valuing expected unserved energy for this project? If you are a large industrial consumer, is \$25,300/MWh appropriate to your own assessment of your cost of non-supply?	Transpower should consider using the more recent analysis by the Electricity Authority. <sup>12</sup>  The Transpower Capex IM review by the Commerce Commission next year may consider this generic CBA (Investment Test) setting.
14. Do you think our discount rate assumptions are reasonable? If not, what discount rates would you consider more appropriate for this analysis?	The Transpower Capex IM review by the Commerce Commission next year may consider this generic CBA (Investment Test) setting.

6. We look forward to viewing Transpower's summary long-list of components and feedback on this consultation paper.

Yours sincerely



Ralph Matthes  
Executive Director

<sup>12</sup> Refer Electricity Authority, Investigation into the Value of Lost Load in New Zealand – Report on methodology and key findings, 23<sup>rd</sup> July 2013, URL <http://www.ea.govt.nz/dmsdocument/15385> at <http://www.ea.govt.nz/about-us/what-we-do/our-history/archive/dev-archive/work-programmes/transmission-work/investigation-of-the-value-of-lost-load/development/stage-3-report-on-methodology-and-key-findings/>