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By email to RCP3@transpower.co.nz

Dear Ross

Draft RCP3 proposal

1. This is a submission by the Major Electricity Users' Group (MEUG) on the Transpower Draft Proposal for consultation, 'Securing our Energy Future 2020-2025 Regulatory Control Period 3, August 2018'¹ (described in the rest of this submission as 'RCP3 draft proposal').
2. MEUG members have been consulted in the preparation of this submission. This submission is not confidential. Some members may make separate submissions.
3. Thank-you for attending the MEUG monthly meeting on 26th July with Kerri Osborne and giving us a preview of the draft proposal. We appreciate the additional opportunity provided by Transpower's release of the draft proposal to comment on both Transpower's rationale for operational and capital expenditure over RCP3 and its assessment of price quality trade-offs before Transpower submits its RCP3 proposal to the Commerce Commission.
4. We also appreciate the effort made by Transpower to make highly technical engineering information accessible by using narrative and high-level dash board indicators to present key trade-offs. In this submission we comment on a subset of the questions listed by Transpower in the "RCP3 draft proposal" mainly with suggestions for clarification regards the underlying assumptions or quantifying the benefits of the options in the proposal.

Q1 Assessment of future demand

5. Transpower's assessment of future demand in the RCP3 draft proposal describes maintenance of the grid assets as the main driver of expenditure for RCP3 and states that it has sufficient grid capacity to meet demand growth over the forecast period.
6. Transpower's assessment also refers to the long run expectation of extensive growth in electricity demand (Te Mauri Hiko) as a driver of expenditure toward the end of RCP3 and as a major driver of expenditure in RCP4 but does not provide any additional detail on the expected timing of demand growth.

¹ webpage <https://www.transpower.co.nz/resources/securing-our-energy-future-rcp3-consultation-document>

7. The descriptions of adequate grid capacity and growth in electricity demand are qualitative. It would be helpful if Transpower would release the quantitative demand forecasts (levels and peaks) that it is working off and also more detailed discussion of Transpower's assumptions about the effects of both battery deployment and the potential for development of demand response over both RCP3 and RCP4.

Q2 Enhancement and development forecasting

8. MEUG supports the use of improved asset health indicators to drive decisions on capital expenditure and would appreciate more detail on the framework for linking asset health indicator (AHI) assessments to asset criticality and service standards. For example, Transpower's proposed reduction in capital expenditure on transformers is based on improved risk evaluation² but the asset health indicator for transformers shows a marked increase in the proportion of these assets at the end of their useful lives by the end of RCP3. A clearer understanding of the link between AHI and service standards would also inform our view on the principles that should be applied to AHI based incentives.

Q3 Challenges to the grid through RCP3

9. Transpower has identified labour availability as a challenge to the delivery of RCP3 projects but this would seem to be a precursor to much more severe problems in RCP4 given Transpower's projection for increased reconductoring work. It is not clear from the draft RCP3 proposal whether Transpower regards labour availability as a binding constraint on the delivery of its grid maintenance and enhancement projects.
10. The structural change in electricity demand projected in Te Mauri Hiko (increased volume and flattening of peaks) also seems to be a strategic challenge for Transpower given the uncertainty about the timing of electrification of transport and industrial processes and whether peaks are likely to be flattened or made less predictable by the initial adoption of battery technology. While it is not possible to reliably forecast these changes over RCP3 and RCP4 a description by Transpower of the key assumptions about peak demand growth, take-up of batteries and how battery owners will be encouraged to use their batteries in ways that moderate peak demand would be helpful in assessing transmission alternatives.

Q4 RCP3 expenditure plans and their revenue impact

11. Transpower states that the estimated increase in underlying maintenance is \$46 million but the increase in funding is only \$9 million and concludes the maintenance section with the comment:

Our proposal to limit funding increases puts full achievement of our objectives in these areas at risk.³

12. Presumably this effect is allowed for in the asset health indicator forecast but it would be helpful if Transpower could indicate the materiality of the risk and whether the limit on capacity to complete maintenance is related to the availability of line mechanics referred to in the discussion of reconductoring or is it a separate issue.

² SECURING OUR ENERGY FUTURE 2020 – 2025, 'Large Substation Equipment' page 27 for capital expenditure and 'Percentage of Assets with AHI ≥8' p39 for power transformer AHI.

³ SECURING OUR ENERGY FUTURE 2020 – 2025, Proposed opex spend page 31.

Q5 Proposed service targets for RCP3

13. For our submission we have assumed that the intended service targets are those shown in 'Service and Asset Health Engagement Paper 3'⁴ as it appears in the table 'GP2 – average duration of unplanned interruptions in the draft RCP3 proposal is a copy of the table 'GP1 – number of unplanned interruptions'.
14. The proposed service targets in Engagement Paper 3 argued for a reduction in service standards because:

*Some of those long-term targets were aspirational. For example, the GP1 target for High Priority POS was set at 0.10 unplanned interruptions per year per POS, compared to a historical average of 0.25. We are no longer convinced the long-term targets we established in our RCP2 submission are appropriate. Particularly with increasing emerging technologies, it is not clear to us whether we should be aiming to increase or decrease the reliability services we provide in the long-term. Once batteries are widespread, for instance, the economic consequence of unplanned interruptions is unlikely to be the same as it is today.*⁵
15. The service targets proposed in Engagement Paper 3 for RCP3 for unplanned outages are difficult to compare with RCP2 as the number of POS in the 'N-1 Security – High Economic Consequence' and 'N-1 Security – Material Economic Consequence' have been increased and new categories have been increased for 'N Security' POS. Comparing the proposed service targets for RCP3 and RCP2 suggests that average service targets:
 - for 'High Economic Consequence' points of service have been lowered with an increase in both the targets for the frequency and duration of unplanned outages after more than doubling the number of POS in this group, and
 - for 'Material Economic Consequence' POS have been improved with a decrease in both the targets for the frequency and duration of unplanned outages after reducing the number of POS in this group by about 20 percent.
16. Before expressing a view on the change in service targets MEUG would like to analyse the drivers of the change in more detail. It is not immediately clear from the comments in Engagement Paper 3:
 - how much of the change in service quality target is attributable to the change in grouping of the point of service as opposed to the RCP2 service targets being treated as aspirational
 - whether the service quality targets were equally aspirational for all points of service or more aspirational for some points of service than others
 - what assumptions were made by Transpower's about the change in the economic consequences of unplanned interruptions and its reliability response along with the supporting assumptions about the use of emerging technologies in general and effect of battery use on demands on the grid
 - what assumptions were made about transmission and distribution pricing which will be one influence on customer adoption of emerging technology and whether the collective use of that technology makes grid peaks easier or harder to predict and manage.

⁴ 'SERVICE AND ASSET HEALTH ENGAGEMENT PAPER 3, June 2018' pages 10 to 11.

⁵ 'SERVICE AND ASSET HEALTH ENGAGEMENT PAPER 3, June 2018' page 12.

Q6 Proposed asset health targets for RCP3

17. As noted in our comment on Question 2, it is difficult to answer this question without a clearer explanation of the link between AHI and changes in service standards over both RCP3 and later periods.

Q7 Explanation of effectiveness ratios for RCP3

18. The RCP3 draft proposal explains the concept of effectiveness ratios well and the fact that the effectiveness ratios are higher for RCP3 than RCP2 is encouraging. However, without information on either the alternative bundles of asset replacement for assets with an AHI of 8 and assets with an AHI better than 8, or the differences in the cost between the bundles, it is not possible to form an independent view on whether the proposed effectiveness ratios are 'appropriate'.

Q8 Other areas that could be suitable for price quality testing

19. The price quality testing covers the key expenditure of areas of the RCP3 proposal.

Q9 Views on the quality indicators we have used

20. The quality indicators are comprehensive, but they combine medium and long-term influences and it is not clear how these indicators affect service quality levels over RCP3 and later. To get a better sense of how the indicators would be applied to assessing price quality trade-offs in practice it would be very helpful if Transpower could provide a description of the following:
 - how the indicators measured now and what if any historical data is available
 - the key inter-relationships between the indicators and how they can be combined into summary measures that map to Transpower's service delivery and asset health targets
 - how Transpower proposes to combine movements in the indicators (in different directions or different amounts in the same direction) and to use the indicators to rank the price quality options
 - how the indicators affect the customer experience of the use of the grid (frequency, duration and timing of outages).

Q10 Views on the balance between price and quality for RCP3 and beyond RCP3

21. The alternative price quality paths described by Transpower are a starting point for users to discuss the difference in price for alternative levels of grid service. However, the differences in the way impacts on service quality are described makes it difficult to quantify the value of the difference in reliability of the different service levels.
22. The alternate price quality paths are difficult to compare because the change in quality is described as a narrative while the change in price is quantified (and is modest). The alternatives would be easier to compare if:
 - some of the change in quality indicators could also be quantified perhaps as an expected value of lost load
 - the same set of quality indicators was reported for all the alternatives (showing no change as required)

- the quality indicators were reported for RCP3, RCP4 and RCP5 in the same way as the change in price indicators.
23. The price quality paths mix options based on Transpower's assessment of its capability to deliver ('Enhanced' vs 'Draft Proposal') with simple trade-offs between reliability and price ('Draft Proposal vs 'Tightened' and 'Further Tightened').
24. It is not clear from the proposal whether the 'lower' price quality paths represent a 'durable bargain'. A rationale for users of the grid being prepared to accept a lower 'quality grid' in RCP4 or RCP5 for lower prices could be an expectation that they will be less dependent on the grid in the future than they are now. However, it is unlikely that the rationale will be stated clearly in submissions on this proposal and even less likely that they will have a broad enough base to provide comfort that reduced reliance on the grid is expected by the majority of users.

Q11 Areas where Transpower should avoid or embrace increases or decreases in quality

25. The priorities for 'changing' quality (where there are clear and material trade-offs) should be assessed on a combination of the expected costs and benefits of the change and the feasibility of making the change. Transpower has already helped to start this discussion with its suggestion of alternatives and could help make the discussion more useful by quantifying some of the change in quality indicators as described in the comment on Q10 above.

Q12 Transpower customers' options to mitigate risks to support a tighter price-quality path

26. Conceptually the options for customers to reduce their dependence on the grid (or contribution to load) are already known with working examples in place. Customer decisions about which if any option to adopt depend on the costs benefits of the option with one of the benefits being a reduction in transmission costs. Under the current transmission pricing rules, the required change in grid use to reduce transmission cost is known and the benefits accrue to the customer.

Q 13 Preference for a smoothed transmission revenue path

27. MEUG does not support a change from the status quo without clear evidence of a long-term benefit to consumers.

Q 14 Preference for how the revenue path is smoothed

28. See answer to Q13 above.

Q 15 Should wash-ups and incentive adjustments be carried across RCPs or applied yearly

29. See answer to Q13 above.

Q 16 Design principles for RCP3 service performance incentives

30. MEUG agrees that the incentives should be designed so that they are strong enough to influence decision making but not too strong relative to the economic benefit and would add that marginal changes in service quality should be directly attributable to actions caused by the incentive. In this respect it would be helpful to have more detailed information on the:

- value of lost load calculations used in developing the service reliability targets, how this value varies with different groups ('High Economic Consequence', 'Material Economic Consequence' and "Generator")⁶
- proportion of the faults that are potentially affected by the incentive. (Transpower's 'Service and Asset Health Engagement Paper 3' notes that 30 percent of outages are due to equipment failure).

Q 17 Design principles for RCP3 asset health performance incentives

31. Transpower's suggestion for the calculation of the incentive rate for asset health provides a simple starting point. It is not clear how the calculation would allow for different levels of asset criticality or different asset lifespans.

Q 18 Use of listed project mechanism for large reconductoring projects

32. MEUG supports the use of the listed projects mechanism for the large reconductoring projects and has found this approach useful for other large reconductoring projects.

Q 19 Use of the listed project mechanism for HVDC Pole 2 life extension work

33. MEUG supports the use of the listed project mechanism for the HVDC Pole 2 life extension work.

Q 20 Use of the low incentive mechanism for re-conductoring work

34. MEUG prefers the use of the listed project mechanism for re-conductoring work.

Yours sincerely



John Harbord
MEUG Chair

⁶ SERVICE AND ASSET HEALTH ENGAGEMENT PAPER 3, June 2018, page 13.