

Memo

To Ralph Matthes
cc
From Mike Hensen
Date 7 March 2019
Subject Comment on Transpower RCP3 Submission – quality incentives

Introduction

Transpower’s proposal to increase the combined revenue at risk for grid performance and asset health measures from 1.8 percent to 2.6 percent of forecast revenue does not provide a clear quantitative explanation of how the change in the ‘incentive’ will:

- achieve the proposal’s objective:
‘The network performance and asset health incentives are designed to strike the right balance between incentives to invest and incentives to reduce costs.’¹²
- alter Transpower’s investment and expenditure to deliver improved quality of service.

Grid reliability standards

Transpower’s proposal to increase the level of revenue at risk for service performance (from 1.4 percent to 2.0 percent of forecast revenue) is set using the following key assumptions:

- for unplanned outages (grid reliability GP1 and GP2) the incentive is aligned with 33 percent (a retention factor) of 50 percent of the value of lost load (VoLL) estimated at \$25,000 per MWh and split evenly between the number of interruptions and the duration of interruptions.
- for planned outages (asset availability AP1 and AP2) an estimate of the time required for work on the high voltage direct current (HVDC) maintenance over RCP3, historical high voltage alternating current (HVAC) availability and the assertion that the VoLL for planned outages is of the order of ‘tens of dollars per MWh’³.

Transpower has published estimates of VoLL for selected demand ‘points of service’ (PoS) served by electricity distribution businesses (EDB). My estimate⁴ of the average VoLL for each of the four demand customer groups⁵ is ranges from \$25,300 per MWh to \$26,200 per MWh.

Analysis of the distribution of VoLL (as shown in the following charts) indicates most customers are within +/- 25 percent of the VoLL of \$25,000 (used by Transpower as a cross-check for alignment of the GP1 And GP2 incentives with VoLL).

¹ Securing our Energy Future, 2020–2025. Regulatory Control Period 3, RCP3 Proposal November 2018, page6.

² This comment is a narrow and oversimplified description of the incentives Transpower investment decisions.

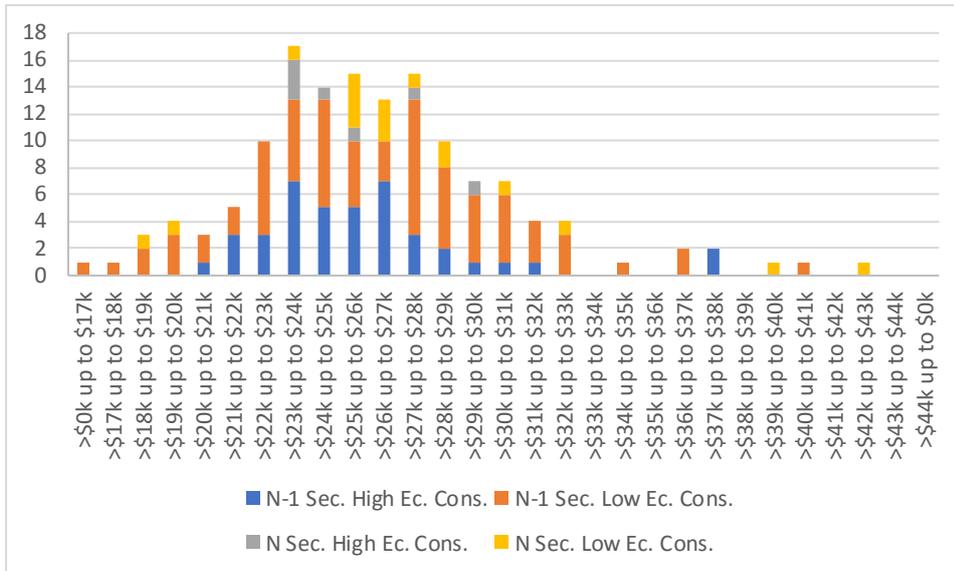
³ ‘Securing our Energy Future 2020 – 2025, Regulatory Control Period 3, Draft Proposal for Consultation, August 2018’ page 57.

⁴ This estimate is based on matching VoLL data from “VALUE OF LOST LOAD STUDY, Transpower New Zealand Limited, November 2018, A.1 Summary of PoS VoLL, p27-48 with annual energy offtake data from ‘RCP3 Regulatory Template, RT02 Output Incentives Model, November 2018’ – worksheet ‘7 Load and injection data’. The estimate is approximate as the format of the names of the PoS are slightly different in each table.

⁵ Transpower has defined four groups of customer demand on the base of grid security (N-1 or N) and economic consequence of loss of load (high or low), The allocation of PoS between high or low seems to reflect difference in energy usage rather than VoLL per MWh.

Figure 1 Number of EDB demand PoS

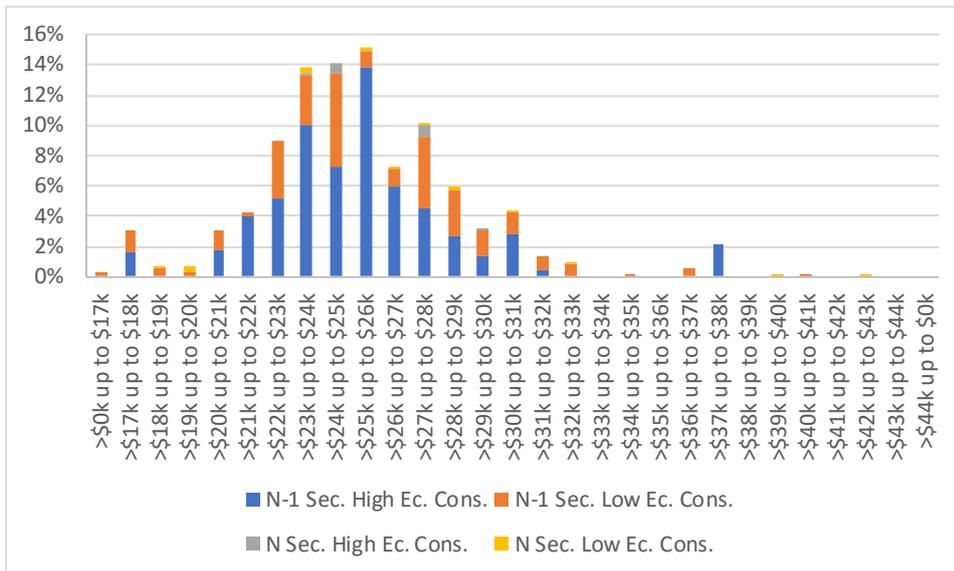
Grouped by VoLL in \$thousand bands



Source: NZIER

Figure 2 Energy demand by EDB demand PoS

Share of energy supplied to EDB demand PoS grouped by VoLL in \$thousand bands



Source: NZIER

Transpower did not publish estimated VoLL for either direct connect demand customers or generators and it is not clear whether unpublished VoLL values for direct connect demand customers were included in the grid reliability incentive calculation⁶ contained in Transpower’s ‘RT02 Output Incentives Model’.

⁶ See ‘RCP3 Regulatory Template, RT02 Output Incentives Model, November 2018’ – worksheet ‘3 Incentive calcs – GP’.

Asset health incentives

Transpower's proposed asset health incentives are a two-step change – replacing 'works delivery incentives' with an 'asset health indicator' for selected assets and then increasing the revenue at risk for asset health. Transpower's proposal to increase the level of revenue at risk for asset health indicators (from 0.4 percent to 0.8 percent of forecast revenue) is based on the following key assumptions:

- the difference between the forecast proportion of selected assets with asset health indicator (AHI) greater than eight with and without the proposed RCP3 investment - described as the 'effect of the investment'
- a 30 percent 'limit' on the 'effect of the investment' which is used to set the cap and the collar for the investment
- a 20 percent 'strength factor' for the incentive

The rationale for comparing the 'RCP3 forecast improvement' to 'no improvement' is not explained and does not seem to reflect a reasonable counterfactual for setting the incentive, given that Transpower 'must' meet service standards set by the 'collar'.

The improvement in AHI from renewal and replacement expenditure is affected by what Transpower describes as the effectiveness ratio – which seems to be related to replacing or renewing assets with a better AHI than eight at the same time as working on assets with an AHI of eight or worse because they are interconnected or located near to each other.