

## Supplementary information for further consultation on proposed TPM correction amendment issue 5

21 June 2023

### Purpose

- 1.1 In response to stakeholder feedback, the Authority has decided to provide additional information and time for submitters to provide feedback.
- 1.2 This document provides supplementary information to inform further consultation on the three matters in proposed TPM correction amendment *Issue 5: more flexibility in the calculation of regional net private benefit*.

### Next steps

- 1.3 We ask stakeholder to consider the additional information in this document alongside information in issue 5 in
  - (a) the Authority's consultation paper<sup>1</sup>
  - (b) the TPM amendment proposal form<sup>2</sup>
- 1.4 Consultation on this issue will close on 19 July at 5pm. Please send your submissions to [network.pricing@ea.govt.nz](mailto:network.pricing@ea.govt.nz).

### Making the calculation of market regional NPB for market BBI discretionary

- 1.5 This issue relates to a BBI that has a small quantum of market benefits relative to other benefit types. At the current time Transpower has not identified a specific BBI where this is the case. However, Transpower considers it is possible for this situation to arise in future. For example, in the amendment proposal form Transpower used the example of an interconnecting transformer that has some market benefits due to decreased losses but is primarily being enhanced for reliability reasons.
- 1.6 In Table 1 below we provide an example. The example in table 1 assumes all customers receive some market benefits from the BBI but only customer 1 receives reliability benefits – which make up 99% of the total positive private benefits of the BBI.
- 1.7 Under the current TPM, customer 1 would receive an allocation of 99% and customers 2 and 3 would receive allocations of <1% each. Given the calculation of market benefits comes at considerable time and expense to Transpower, Transpower does not consider it necessary to always calculate market benefits to achieve the aim of allocations that are broadly proportionate to expected positive net private benefits (EPNPB).

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<sup>1</sup> Electricity Authority, Amendments to correct issues in the new TPM, Consultation paper, 17 May 2022  
[www.ea.govt.nz/documents/3026/Consultation\\_paper-Amendments\\_to\\_correct\\_issues\\_in\\_new\\_TPM.pdf](http://www.ea.govt.nz/documents/3026/Consultation_paper-Amendments_to_correct_issues_in_new_TPM.pdf)

<sup>2</sup> Transpower, Proposal to amend the Electricity Industry Participation Code 2010, Regional NPB under the price-quantity method, 5 May 2023  
[www.ea.govt.nz/documents/3032/TPM\\_amendment\\_proposal\\_form\\_5\\_Calculating\\_regional\\_NPB\\_under\\_the\\_price-quantity\\_method.pdf](http://www.ea.govt.nz/documents/3032/TPM_amendment_proposal_form_5_Calculating_regional_NPB_under_the_price-quantity_method.pdf)

**Table 1 Worked Example**

	Market benefits	Reliability benefits
Customer 1	\$100k	\$45m
Customer 2	\$200k	\$0m
Customer 3	\$150k	\$0m

1.8 In practice, if the proposed amendment to clause 44 is adopted, Transpower will likely not quantify the market benefits at all, and instead rely on other qualitative or quantitative analysis to determine if market benefits are a material proportion of total benefits. An example of this approach in practice is in section 6 of the draft record of the application of the price-quantity method to the Pole 2 convertor transformer refurbishment BBI, where Transpower proposed not to calculate ancillary service benefits because it considered they were not material for that BBI.<sup>3</sup>

### **Flexibility for method for combining MWh-denominated and dollar-denominated regional NPB**

1.9 This issue relates to the current requirement to use the clause 52 method to convert market benefits, that were quantified using the clause 51 method, into dollars so they can be combined with another benefit type (ancillary service or reliability).

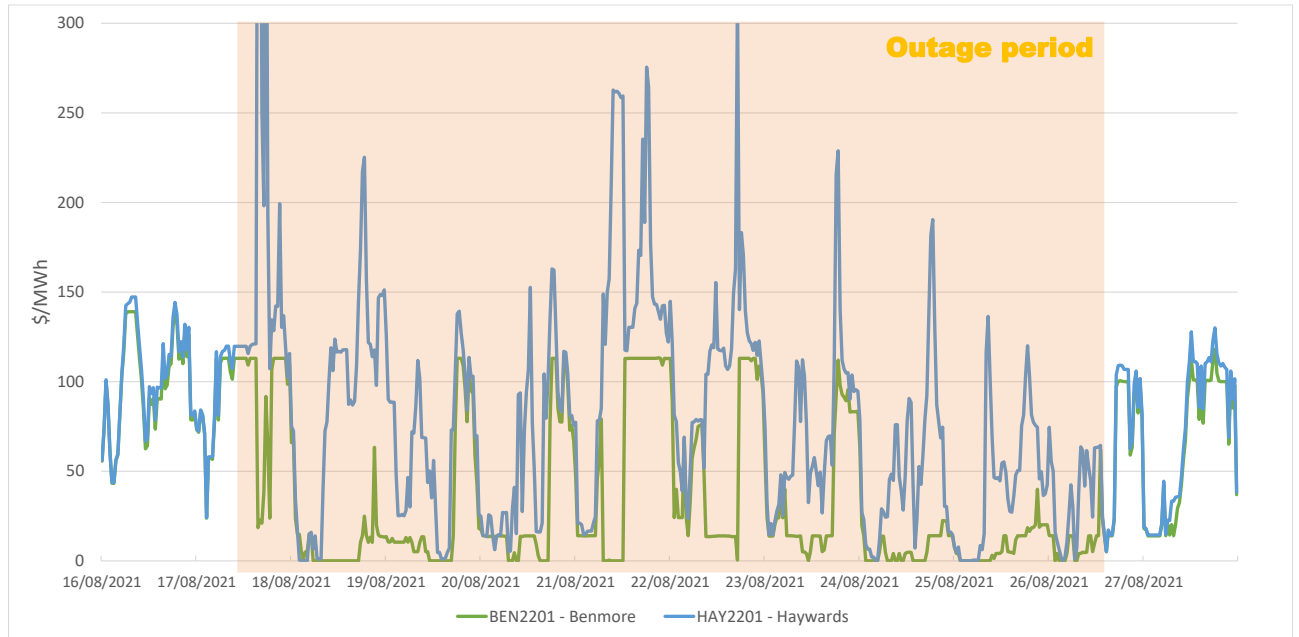
1.10 As noted in paragraph 301 of the assumptions book, the sensitivity of prices to uncertain model inputs is one of the key factors Transpower considers when deciding to use clause 51.<sup>4</sup> In a situation where Transpower has used the clause 51 method for this reason, Transpower has told us it is wary of using the modelled prices to also determine the total magnitude of market benefits. Furthermore, as noted in Transpower's amendment proposal form, using clause 52 is likely to add considerable duplicated effort where there are alternative options available.

1.11 An alternative to using modelled prices is for Transpower to assess historical data. For example, Transpower could:

- observe price separation during historical outages (such as the outage to Pole 2 of the HVDC during August 2021 below)
- calculate the average price separation across the HVDC during the historical outage (in this case ~\$50/MWh)
- assume price separation is symmetric either side of the constraint (i.e. \$25/MWh to each modelled region)
- multiply this by the regional NPB for each regional customer group with positive NPB – resulting in an estimate of the total market benefit for that BBI.

<sup>3</sup> [TPM HVDC Pole 2 starting customer allocations - draft record \(January 2023\).pdf \(amazonaws.com\)](#)

<sup>4</sup> [BBC Assumptions Book v1.1.pdf \(amazonaws.com\)](#)



### Clarifying rules for determining modelled regions

- 1.12 This issue relates to using the change in price between the factual and counterfactual to determine modelled regions in clause 50.
- 1.13 The consultation paper outlines some situations in which Transpower considers the change in price between the factual and counterfactual could be an unreliable metric to determine modelled regions.
- 1.14 Another example is where an upstream node is modelled as having a fixed SRMC (at any given point in time), which would result in the price at that node being unchanged with and without a transmission constraint where the upstream plant is marginal. For example, see the simplified Figure 1 below, in which the downstream nodes B and C have a reduction in price, but the upstream node A does not due to a fixed SRMC assumption for generator A.
- 1.15 A fixed SRMC is a typical simplifying assumption for thermal plant in the long-term modelling undertaken for the investment test. However, in reality, there are many factors that result in the SRMC being a function of output – including the thermodynamic efficiency of the plant, ramping constraints, minimum output constraints, and fuel supply constraints. This is reflected in offers to SPD, which are rarely provided in a single offer band.
- 1.16 The proposed amendment to clause 50 clarifies that the objective of the determining modelled regions is to achieve allocations that are broadly proportionate to expected positive net private benefit (EPNPB) rather than using the results from the modelling in clause 49 without question. In a situation such as Figure 1, Transpower told us it would consider that the prices at node A are lower than at B and C in the counterfactual due to the presence of the transmission constraint between A and B, and with the knowledge that node A is physically upstream of this constraint, would conclude that node A is a region in which generators benefit from the constraint being relieved despite the absence of a change in price at node A.

**Figure 1: Simplified example of price separation due to a transmission constraint**

