

21 October 2020

Rebecca Osborne  
Head of Grid Pricing Strategy  
Transpower  
By email to [TPM@transpower.co.nz](mailto:TPM@transpower.co.nz)

Dear Rebecca

### **TPM: Transitional Congestion Charge – cross-submission on workshops and submission on process**

1. This letter is from the Major Electricity Users' Group (MEUG) is on two aspects of Transpower's consideration of a transitional congestion charge (TCC)<sup>1</sup>:
  - a) This is a cross-submission on the workshop discussion held 6<sup>th</sup> October 2020; and
  - b) A submission on the process.<sup>2</sup>
2. MEUG members have been consulted in the preparation of this submission. This submission is not confidential. Some members also make submissions.

### **Cross-submission on the workshops**

3. In this cross-submission we:
  - a) Refer to the eight questions on slide 26 of the slides discussed at the workshops.
  - b) Assume a strawman TCC that builds on some current aspects of the RCPD regime (primarily it is an ex ante signal) modified to fit with the new TPM Guidelines and introduction of RTP.

To distinguish the strawman TCC from the existing RCPD regime we call the modified approach an Area Approaching Congestion Charge (AACC). An area may be one of the current RCPD regions or a subset of nodes in a RCPD region.

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<sup>1</sup> <https://www.transpower.co.nz/industry/transmission-pricing-methodology-tpm/tpm-exploring-transitional-congestion-charge>

<sup>2</sup> Transpower invited "comments about the format of the TCC workshops and the feedback process. We are particularly interested to hear whether a similar workshop approach might be welcomed for upcoming consultations." in the TPM Updates of 13<sup>th</sup> October 2020, refer <https://mailchi.mp/transpower.co.nz/tccprocess-nextconsultation>

4. The strawman TCC could be considered a default TCC if no other TCC proposal is developed. If other TCC options are suggested, then the strawman can act as a counterfactual to test alternative TCC proposals.
5. The strawman TCC, that is the AACC option, is not a proposal from MEUG. It is a device to think about solutions to avoid the risk of unintended consequences of grid congestion occurring when the new TPM commences. John Hancock, the workshop facilitator, summarised the unintended consequences a TCC would help mitigate in the first workshop as:
  - a) “So, the first harm that we’re trying to avoid is customers who don’t choose to have their load curtailed, having their load curtailed.”<sup>3</sup>
  - b) “But, the second harm that we’re concerned about avoiding, is retailer exposure to scarcity prices, and scarcity prices in real-time pricing are considerably higher than scarcity prices in the wholesale market today.”
6. There are four observations from the above quotes:
  - a) First ultimately the harm from both unintended consequences is borne by end customers. End customer representation needs to be enhanced in future similar workshops. We pick this theme up in the second half of this submission on feedback on the process.
  - b) Second retailers, aggregators, distributors and Transpower are intermediaries in relaying their costs into price signals that customers respond to. We agree with the discussion at the workshop that how distributors currently respond to RCPD on behalf of customers in terms of ripple control or other load shedding tools is unclear. Similarly, the same ability and willingness of distributors to continue current practice is unclear. There is a risk pricing signals following the introduction of Real Time Pricing (RTP) in late 2022 and the new TPM regime from April 2023 will not be passed through to mass market customers. We agree with the suggestion by Glenn Coates at the second workshop that Transpower should survey distributors in areas that may require a TCC to better understand if there may be issues and to ensure the solution is not riskier than the perceived problem:

“I think in my mind I’m going back to probably the comment I made earlier in the meeting around actually understanding that risk. So, the risk will only come from a change in behavior, and who are the participants that will have a change in behavior as a result of RCPD disappearing? Distributors might. We could probably go and talk to them and find out a little bit more about how they might change, and that will be different across each once. What are the direct connects, or large customers, or commercial customers who are exposed or tends to get different pricing as a result of that? It might also change their behavior. Is there any of those? Is there material? I think it would be useful to get an understanding of that risk because there are risks associated with

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<sup>3</sup> This quote is per the workshop recording. The unedited workshop transcript published 20<sup>th</sup> October uses the word “contained” rather than “curtailed.”

implementing a TCC too, but you don't know... We haven't yet decided on the form of that. And until you form it, you don't know what the risks are that are associated with the implementation of it. We've got to be careful that the solution is not riskier than the original problem.”

- c) Third, in areas where it might be needed, the TCC fits between:
- ~ The point when market response to increasing nodal prices (that is increase in losses as congestion bites and not scarcity prices discussed in the next subparagraph) in the new RTP regime plus Transpower's grid operator initiatives to avoid congestion reaching the point where transmission services are insufficient to meet demand; and
  - ~ The point when the system operator unilaterally curtails load and the scarcity prices in RTP are triggered. At this point it is too late for some customers. It is the point of failure for those customers.

For areas where the grid owner expects a TCC may be needed, we assume the number of trading periods the TCC will be used will be few. We expect, subject to the Grid Owner analysing further, the number of trading periods will be much lower than N=100 for RCPD, probably an order of magnitude less, i.e. 10 or fewer trading periods per year.

- d) Fourth the best way to minimise the harms in paragraph 5 is to have the best possible implementation of the new TPM and RTP and co-ordination of both projects so that all market participants have as early as possible an understanding of risks and opportunities. Transpower has a critical role to ensure:
- ~ Processes for the grid owner considering and contracting non-transmission services are improved and the market gains some visibility of a “market-price” for such services.
  - ~ The grid owner pro-actively provides an indication of parties likely to be paying for grid upgrades and an indication of the magnitude of the value of charges using the new benefit based regime because that is an important trigger those parties to consider investing in alternatives to avoid paying new grid costs.

7. The following eight sub-sections provide feedback on the questions on slide 26.

*Qu i) How could parties contributing to congestion be identified on the interconnected grid? When should TCC capacity measurement occur? [ex-post based on power flows contributing to a constraint? ex-ante based on forecast location of constraint?]*

8. The AACC option would continue to use the current RCPD approach of setting ex ante a charge though differ by setting a pre-established threshold or trigger maximum capacity for when the TCC charge would apply in areas identified by Transpower as potentially a risk of transitional unmanageable grid congestion. Two explanatory notes follow:
- a) In RCPD the “predefined set of highest peaks in the prior year” equals 100 (i.e. N=100). MEUG agrees with the discussion at the workshops that the number of half-hours used for calculating AACC could be changed. As discussed in paragraph 6

- c) above the N for the TCC in the AACC strawman is probably an order of magnitude lower, i.e.  $N \leq 10$ .
- b) By “transitional unmanageable grid congestion”, we mean congestion not manageable by incentives on supply and demand side participants in a RTP spot market or by Transpower contracting for short and long-term Grid Security Contracts and non-transmission solutions including its Demand Response Programme.

***Qu ii) On what basis could the TCC be charged? [e.g. Demand or generation contribution to coincident peaks in a relevant area?].***

9. What matters for the TCC is to incentivise behaviours at GXP that reduce net load. Therefore, load shedding and or injection not incentivised already by nodal prices and bespoke arrangements with the grid owner need to get a TCC price signal for those actual peak trading periods where the grid supplying an area is constrained. Ideally the rate would be specific to an area, not a uniform rate across all New Zealand as used in the RCPD regime. However, because this is a short transitional signal, simplified approaches could be considered such as adopting a uniform rate across New Zealand and fixing the TCC for appropriate regions as constant over the 5 or less years of the transition. The grid owner should have the option of reviewing that flat price if unforeseen material problems arise. Load at GXP that responded to the TCC would pay less of the residual for that area than they would otherwise have paid. The residual paid by load at other GXP in that area that did not respond to the TCC would pay more than they otherwise would have paid if no TCC was in place.

***Qu iii) What is the initial price, and/or how should the initial price be determined? [Long Run Marginal Cost (LRMC) based on indicative future investment cost? A price high enough to ensure a response? Static price or phased price?].***

10. The answer to this question ideally is the option in the header to this section, “a price high enough to ensure a response.” More analysis is needed by Transpower and, as we suggest in the second half of this submission on the consultation process, we recommend a further consultation round using a strawman to test options and to gain an idea of the magnitude of cashflows etc. For example, options that could be tested are to consider ways to make part of the residual less un-avoidable to get just enough response to manage the risks in paragraph 5. We emphasise this would apply to just part of the residual applying to an area at risk of transitional unmanageable grid congestion with most of the residual for that area being allocated using the new Guidelines formula. We have not analysed what fraction of the residual in an area could be part modified for a TCC and what fraction would use the Guidelines formula; however given we expect the incidence of a TCC being triggered in any one area to be very few Trading Periods per year, then the quantum of the residual to be modified and deployed for a TCC can be expected to be similarly small. Instead of using the new Guidelines residual allocation formula of changes in average (over 4-years) annual gross energy lagging by 3.75 years (not full years because this accounts for the difference between price and volume measurement years), that part of the residual to be modified for a TCC could:

- a) Use net rather than gross AMD at GXP in the area; and or
  - b) Have a shorter lag between the measurement period and the price year.
11. Assessing “a price high enough to ensure a response” will require Transpower to analyse and predict the risk, as explained in the new TPM Guidelines:
- “... that the grid might become congested, if other means of controlling or influencing demand, including nodal pricing and administrative load control associated with scarcity pricing, are not adequate to meet this objective.”<sup>4</sup>
12. To put some context into the question of a TCC price, note that several MEUG members currently respond to RCPD. In aggregate there could be over 150 MW of grid connected industrial demand responding to the current \$/kW RCPD charge. If the strawman AACC \$/kW TCC is set too low when response is needed, none of that 150 MW will be curtailed because there is an opportunity cost of foregoing production when load is shed.
13. The Concept Consulting report for the Electricity Authority, Winter capacity margin – potential effect of possible changes to transmission pricing, February 2020, provides some initial views on the price signal effect of RCPD and demand reductions triggered.<sup>5</sup> Concept estimate (p19) the RCPD “signal is expected to equate to around \$980/MWh in 2021, if no change occurred to the TPM.”<sup>6</sup> MEUG notes the estimate by Concept Consulting (p54) that “In total, the change in demand response from major industrial customers in RCPD periods is estimated at about 44 MW” is not supported by our own informal survey by way of discussion of actual members ability to and actual responses to current RCPD signals mentioned in the preceding paragraph.

***Qu iv) What are the risks that need to be monitored?***

14. MEUG agrees the two primary unintended consequences a TCC is needed to manage are those summarised in paragraph 5 above. The primary measures of success or failure of a TCC are therefore:
- a) Year by year changes in level of load unilaterally curtailed.
  - b) Year by year changes in frequency and magnitude of cost effects of scarcity pricing being triggered.

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<sup>4</sup> Refer TPM 2020 Guidelines, 10<sup>th</sup> June 2020, opening section titled “Authority’s intent”, paragraph viii (d).

<sup>5</sup> Refer URL <https://www.ea.govt.nz/assets/dms-assets/26/26541Concept-Winter-capacity-margin-Feb-2020.pdf> at <https://www.ea.govt.nz/development/work-programme/pricing-cost-allocation/transmission-pricing-review/development/>

<sup>6</sup> The Concept Consulting report estimate of \$980/MWh has a footnote explaining the assumptions used for this estimate. Changing the denominator from N=200, assumed by Concept, to N=100 will double the value of the estimate of the RCDP price signal. The following text of footnote 31 from the Concept report is quoted in full explains the assumptions and this sensitivity: “This is based on the forecast interconnection rate of \$98/kW, and assumes parties operate for 200 trading periods (100 hours), to have a high level of confidence of reducing net demand during the 100 trading periods with regional highest demand. The Authority has previously used 150 periods for similar purposes. Either value is appropriate, depending on the assumptions used. Using a lower number of periods in this analysis would increase the price signal but would not change the conclusions.”

And following on from the point in paragraph 6 d) of mitigating the need for a TCC:

c) A measure of failure of the TCC would be if any new grid investment in an area was justified by Transpower based on the TCC being triggered. The TCC is not intended to substitute for the new benefit-based-charges. Put another way, if any investments are justified by Transpower that the TCC has been triggered, then Transpower will have failed to effectively implement the new benefit-based-charges regime.

15. There are causation factors that need to be considered that affect the primary unintended consequences. Two examples of causation factors that are not easily monitored using a quantitative output like those in the preceding paragraph follow:

- a) When defining an area to have a TCC, only nodes that will be subject to the risk of transitional unmanageable congestion need be included. Circumstances can change. An initial analysis may show a node should be in an area. Subsequently an unexpected exit of a load may lead to a node in a defined TCC area now no longer being prone to transitional unmanageable congestion. The opposite can happen also.
- b) Striking the right “price” or “charge” for a TCC is not trivial. The TCC should not undermine the incentives in a future RTP spot market and for Transpower to contract for short and long-term Grid Security Contracts and non-transmission solutions including its Demand Response Programme. The TCC must be a backstop and not a competitor to those preferred market mechanisms.

*Qu v) What could trigger a specific TCC to be turned on? [e.g. Transpower’s Transmission Planning Report signaling a need date for a specific location/region within 5 (?) years?].*

16. MEUG agrees using Transpower’s annual Transmission Planning Report to identify and trigger areas that a TCC should be implemented would be good option to start with. For example, the 2021 Transmission Planning Report should identify capacity triggers for all areas in New Zealand including those in winter 2023 onwards. The Report should also have sufficient information to identify areas where forecast demand might exceed those capacity triggers. For those areas Transpower can then focus investigations into how to design a TCC for that area considering the scale and number of trading periods of possible grid supply shortfalls to be managed.

***Qu vi) How could parties know they are exposed to a specific TCC?***

17. The AACC option should be an ex ante signal so that connected parties in an area subject to a TCC would know well in advance the TCC rate and trigger capacity. Closer to real time affected customers in an area should be provided good forecast and actual real time grid use information to enable them to make a judgement of when a “TCC” event is expected to be triggered. The onus is on affected parties to self-trigger to manage net load at their GXP given a known capacity trigger and TCC rate. Closer to real-time end customers then need to make an assessment if the TCC will be triggered. For example, for winter 2023 knowing the TCC rate and the capacity trigger at least a year beforehand would be needed so that consumers could put processes and or investment in place to manage uncertainty in winter 2023. Waiting to tell the market in April 2023 of final details such as the trigger capacity and rate is risky because some parties will have insufficient time to be prepared for winter 2023. That means measurements will need to be made in winter 2022 at the latest. If the option of modifying part of the residual for a TCC charge as discussed in paragraph 10 is adopted then that will simplify collection of volume measurement data as that will be needed for the allocation of the un-modified residual.

***Qu vii) How could the charge be phased out? [Phase-out must commence no later than one year after its introduction.]***

18. To keep it simple we suggest the strawman approach for the opening year AACC charge be used for all transitional years except if the review proposed in paragraph 9 determines a change is needed.
19. We did consider the option of a setting a TCC for the AACC option in the first year (2023/24) and then having a straight line decrease over 5-years. However, that approach might lead to the relativity of the AACC charge compared to other preferred market options to use curtailable load discussed in paragraph 15.b) being unsustainable over 5-years.

***Qu viii) What would signal a need to continue the TCC beyond 5 years?***

20. If the measures of success listed in paragraph 14 above have trends that indicate unintended consequences are increasing, and the cost of those is material, then Transpower should consider if the TCC should continue beyond 5-years.

## Submission on the process

21. The circulation of material before the workshop, opportunity to nominate people to speak at workshops and a cross-submission phase all worked well given the compressed consultation timeline on TCC.
22. MEUG is supportive of similar invitation only workshops for further specific TPM topics provided:
  - a) Two minutes is given at the outset to each speaker to summarise their initial views with the option if they wish of having a single slide to supplement their 2-minute slot. Those slides would be published.

This would avoid the risk the contribution of a speaker to the discussion may be misinterpreted out of context with their over-arching view. Put another way the discussion did not follow the questions on slide 26 and speakers may have felt they had points to make but did not have an opportunity to make them.

The downside to this is it would have added 18 minutes to the 1-hour scheduled workshop time. MEUG suggests the workshop could have been scheduled for 1 hour and ten minutes and a few minutes saved by forgoing introductions to accommodate an additional 18-minutes.
  - b) There was good broad representation on the workshop though we are unsure why large vertically integrated retailers and distributors had two representatives compared to end consumers having only one per workshop. As noted in paragraph 6 a) above, retailers and distributors are part of the supply chain with customers bearing final costs, being the parties that will be subject to load being unilaterally shed or electing to shed if there is a financial benefit. Future workshops should consider if more customer representatives should be included. Direct customer representation will become more important in the discussions on benefit-based charges and residual charges where consumers rather than parties in the supply chain bear the cost of allocation decisions.
  - c) For future workshops, the pre-workshop material would benefit from a strawman to assist debate. Transpower should consider tabling more detailed strawmen options, albeit with caveats that the strawmen are not Transpower's initial view but are intended to assist a more detailed debate, i.e. similar to the caveat and approach of discussed in paragraphs 4 and 5 of the above cross-submission.
23. MEUG suggest the importance of this topic is sufficient for Transpower to consider a second-round consultation starting with a strawman proposal based on feedback from this consultation round.

Yours sincerely



Ralph Matthes  
Executive Director