Transmission pricing methodology

Submissions on the Electricity Commission's consultation paper

Report to MEUG

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Preface

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1. Introduction

On 1 November 2006, the Electricity Commission (the Commission) released a consultation paper[1] on the pricing methodology proposed by Transpower[2] for recovering the costs of electricity transmission from its customers. The consultation paper presented the proposed transmission pricing methodology (TPM), together with the Commission's assessment of it against the transmission pricing guidelines it had previously issued, the pricing principles in the Rules and its statutory obligations.

The Commission called for submissions on the TPM and its consultation paper by 2 February 2007. The Commission received 27 submissions from various parties. It has published these on its webpage and invited cross-submissions. The deadline for cross-submissions is 2 March 2007.[3] The Major Electricity Users' Group (MEUG) has asked NZIER to provide advice on any significant matters raised in the submissions of other parties that it should provide comment on to the Commission. This report presents our advice.

2. Significant matters in submissions

Among the 26 submissions from other parties there are a small number of matters that we believe are worth challenging, supporting or raising in the cross-submission process. Briefly, these are:

- The widespread support among submitters for the essence of the "but for" approach to allocating the costs of new investment advocated in our paper which accompanied MEUG's submission;
- The submissions that noted that if the coincident peak proposal in the TPM is adopted it is desirable to provide advance warning to users of when peak periods are likely so they can modify their behaviour;
- The criteria by which the regions requiring grid investment and those which are unconstrained are defined and changed under the coincident peak proposal in the TPM;

[1] Electricity Commission (2006) *Transmission Pricing Methodology Consultation Paper*, November, www.electricitycommission.govt.nz/pdfs/opdev/transmis/pdfsconsultation/tpmnov06/TPM-consultation-paper.pdf

[2] Transpower New Zealand (2006) Transmission Pricing Methodology, June, www.electricitycommission.govt.nz/pdfs/opdev/transmis/pdfsconsultation/tpmnov06/TPAG-Proposed-tpm.pdf

Transpower New Zealand (2006) *Transmission Pricing Methodology: Supplementary Material*, June, www.electricitycommission.govt.nz/pdfs/opdev/transmis/pdfsconsultation/tpmnov06/TPAG-Supplementary-Material.pdf

[3] http://www.electricitycommission.govt.nz/opdev/transmis/tpm#xsubs

- Todd Energy's request to amend the proposed TPM to better incentivise distributed generators by giving them concessions which reflect the transmission cost savings they create;
- Transpower's objection to the Commission's proposal that parties which share connection assets should have the option to agree among themselves how the costs of the assets will be shared;
- The attempts by some South Island generators to use the invitation to make submissions on the proposed TPM and the consultation paper to re-litigate the Commission's guidelines to Transpower relating to charges for the HVDC;
- The puzzle as to why connection charges in aggregate should fall and interconnection charges should rise when a deeper definition of connection is adopted; and
- The various submissions relating to Q29 on whether coincident peak allocation is the best alternative.

We consider each of these matters in turn.

3. Support for "but for"

In our report on the TPM and consultation document we argued that for investments in increased grid capacity what assets are connection assets should be defined using a "but for" test along the lines used by the system operator in PJM. Under this approach, when a generator or particular load or loads can be identified as the "causer' or "user" of the investment in grid expansion, the charges relating to the assets that would not be necessary "but for" that party or parties are charged to them.

These assets become connection assets of the party or parties. When no party or parties can be identified using this approach, the assets would be classified as interconnection assets. We showed in our report how this approach to defining connection assets is consistent with the Commission's guideline to define connection assets as deep as practicable to reduce cross-subsidies. We also showed how it is superior to what Transpower proposes when measured against the guidelines, rules and statutory obligations of the Commission.

One of the features of submissions is the number and range of other parties apart from MEUG members that have lent support to the "but for" approach. In many cases the terminology used is different, but the idea is the same, or, at the very least, closely related.

- Aurora Energy Limited submitted "Transpower's definition of deep connection using augmented loop flow should be replaced by one that tests what assets would no longer be required if the generation or load was removed";[4]

- CRA International on behalf of the Electricity Networks Association wrote "We recommend the implementation of a "deprival" definition of deep connection, where deep connection assets are those assets that would no longer be required if all load or generation at a grid connection point was removed".[5] This submission also identifies in an appendix the inconsistencies and cross-subsidies that Transpower's proposal for defining connection assets will create;[6]
- Genesis Energy supports the Transpower proposal regarding the definition of deep connection on the grounds it "should allow regulatory certainty and minimal disputes." It dismisses "the alternatives put forward" as "overly complex" and involving "greater uncertainty, more disputes and greater transaction costs." It is not clear if Genesis would extend its concerns about "alternatives put forward" to include our "but for". Genesis's very strong support for "where a direct beneficiary or the services/assets can be identified then they should pay for the service/asset"[7] should mean it would be supportive of the "but for" approach, provided it is simple and leads to low transaction costs. The experience of PJM suggests this should be the case.
- Mighty River Power[8] and Vector[9] both call for work on the development of locational-based pricing for transmission to improve investment decision making regarding the location of generation and load. "But for" is one means of introducing a greater locational aspect into the TPM and in this sense is a related idea.

In the earlier rounds of submissions on guidelines for transmission pricing there was reasonably widespread support for locational pricing. Even the Commission has not ruled it out as a potential future development. However, the increasing awareness as time has gone that there is likely to be very large sums invested in the transmission grid over the next few years, and that much of that investment will be of limited or no benefit to consumers in significant areas of the country, has undoubtedly heightened

4 http://www.electricitycommission.govt.nz/pdfs/submissions/pdfstransmission/tpm-Jan07/4Delta.pdf p4.

5 http://www.electricitycommission.govt.nz/pdfs/submissions/pdfstransmission/tpm-Jan07/ENA.pdf p.3.

6 http://www.electricitycommission.govt.nz/pdfs/submissions/pdfstransmission/tpm-Jan07/ENA.pdf pp.50-2

7 http://www.electricitycommission.govt.nz/pdfs/submissions/pdfstransmission/tpm-Jan07/Genesis.pdf, p.2.

8 http://www.electricitycommission.govt.nz/pdfs/submissions/pdfstransmission/tpm-Jan07/MRP.pdf pp.7-10.

9 http://www.electricitycommission.govt.nz/pdfs/submissions/pdfstransmission/tpm-Jan07/Vector.pdf p.3.

awareness of the need for the TPM to provide the correct locational signals to new generation and load.

If the Commission does not use the current opportunity to address the matter through the definition of deep connection as we propose, this concern is likely to grow and, moreover, the difficulties of introducing a pricing methodology that addresses it is likely to increase materially once a significant amount of grid upgrade with a strong regional focus has been approved. "But for" provides the Commission with a solution and way forward that has been thoroughly tried and tested in an electricity market with a very similar structure to our own nodal pricing market.

4. *Ex Ante* information on regional peaks

A number of submitters point out that interconnection charges on regional coincident peak demand (RCPD) will only produce efficient outcomes if distribution networks and other parties with the ability to control load are able to determine, in real time, when a regional peak is likely to occur.[10] Some have argued that since such information is unlikely to be available the RCPD approach should be abandoned or delayed. Others have, however, argued that Transpower should be required by the Commission to provide this information as part of its service package.

We believe these commentators have a valid point. If the RCPD approach is going to be adopted, then this should be augmented with real time data to distributors and direct connects on likely regional load levels over the next few trading periods.

5. Criteria for defining and changing regions

A number of submitters[11] have commented on the need for a clear means to identify the boundaries of regions, deciding whether they are constrained or unconstrained and for changing the boundaries and classifications over time. In our previous report on the proposed TPM and consultation paper we did not see the regional boundaries and means of changing them as matters of

[10] See, for example: http://www.electricitycommission.govt.nz/pdfs/submissions/pdfstransmission/tpm-Jan07/ENA.pdf pp.40-41. http://www.electricitycommission.govt.nz/pdfs/submissions/pdfstransmission/tpm-Jan07/4Delta.pdf pp.7-8. http://www.electricitycommission.govt.nz/pdfs/submissions/pdfstransmission/tpm-Jan07/Counties.pdf p.1.

[11] See, for example: http://www.electricitycommission.govt.nz/pdfs/submissions/pdfstransmission/tpm-Jan07/ENA.pdf pp.37-38. http://www.electricitycommission.govt.nz/pdfs/submissions/pdfstransmission/tpm-Jan07/Genesis.pdf p.6. http://www.electricitycommission.govt.nz/pdfs/submissions/pdfstransmission/tpm-Jan07/Orion.pdf pp.10-13.

concern. We favoured the four regions over one region, were comfortable with how the regions were identified and expressed the view that the TPM change mechanism in the rules was sufficient to deal with the need to change regions. This mechanism provides that: "the [Commission] may review an approved transmission pricing methodology if it considers that there has been a material change in circumstances."[12] In any review the Commission is required to follow the same process as set down to approve the TPM originally.

Having read the submissions of other parties on this matter, we are still of the opinion that the proposed approach is satisfactory and the requirements to use the current rules to change regions strikes a reasonable balance between the need for regulatory stability and predictability and the need for the TPM to adapt to changed circumstances.

6. Todd Energy's proposal for distributed generation

Todd Energy expresses concern that the proposed TPM does not provide distributed generators with an incentive, and it argues they should receive the value of the transmission costs avoided as a result of the presence of the distributed generator.

Todd Energy suggests that distributed generators should get the benefit received from transmission services provided where these are measured as RCPDG x ICR. In this calculation ICR is the interconnection rate (after adjustment for paying distributed generators the benefits Todd Energy proposes) and RCPDG is the maximum of the average regional coincident peak demand (RCPD) of off take customers and the average regional coincident peak injection (RCPI) for the distributed generator.

The "electrical contribution" of a distributed generator to reducing the regional coincident peak demand is the extent to which the distributed generator injects above the capacity of the grid in the region at times when otherwise the demand would have exceeded the capacity. We struggle to see that the mathematical expression suggested by Todd Energy is equivalent to this. Moreover, the value of the contribution of the distributed generator is going to be equivalent to the costs of providing the increase in electrical capacity identified, and again we struggle to understand why using the interconnection rate as Todd suggests will result in the correct amount.

Todd Energy have highlighted that distributed generation and transmission alternatives more generally have largely dropped out of active consideration when it comes to investment options under Part F. One of the positive results of adopting our proposed "but for" approach would be to increase the incentives on the generators and loads that will bear the costs of any

[12] Electricity Governance Rules, Part F, Section IV, Rule 11.2.

transmission upgrades they cause to consider whether their needs and requirements could be more cheaply met by distributed generation or other transmission alternatives.

7. Transpower's objection to consumer decision making

In its submission on the proposed TPM and consultation paper Transpower largely agrees with the Commission. This is not surprising because. Transpower is not likely to object to the TPM it has proposed itself and on most issues the Commission has supported Transpower's proposal.

One aspect of the consultation paper Transpower objects to is the Commission's proposal to amend the TPM so that customers can agree on a voluntary sharing of the costs of connection assets they share.[13] Transpower's grounds for objecting are:

- It turns the TPM into a default mechanism to be used if the customers' cannot agree and, if the TPM was intended to be a default mechanism, then this would have been expressly provided for in the Rules, as it was for benchmark agreements;
- The proposed change is inconsistent with the pricing principles and guidelines. Transpower points to guideline 11 providing that parties that share the use of connection assets should have the costs shared among them on a peak demand or injection basis;
- The proposed change is contrary to section 172F (1) (c) which requires that a rule should not be made when another mechanism could reasonably practicably achieve the same end. Transpower argue that customers wanting to share costs differently than under the TPM could make a voluntary side agreement, so a rule is not required; and
- Voluntary agreements about cost sharing are difficult to achieve and involve substantial transaction costs.

The significance of this submission is not its substance *per se*; each of the first three legalistic points made by Transpower is easily rebutted, and the last point is surely not an issue. The parties themselves will bear the transaction costs and they will doubtless assess if the transaction costs are likely to be greater than the benefits to them when making decisions about whether to go with the standard arrangement or agree something else.

The significance of the submission is the hyper-sensitivity it suggests Transpower may have about the prospect that its customers might make decisions about what arrangements relating to transmission they would like to have. We trust this is an aberration. However, we suggest the Commission should consider the possibility it is not, and that the submission

[13] http://www.electricitycommission.govt.nz/pdfs/submissions/pdfstransmission/tpm-Jan07/Transpower.pdf pp.8-10.

reflects a concern about consumers participating in decisions. If the Commission concludes it is not an aberration then we suggest it should take this into account when evaluating the structure and content of the benchmark agreement. There were plenty of allegations at the Commission's conference relating to benchmark agreements that Transpower can be a difficult counterparty in commercial negotiations.

8. HVDC Submissions

In its submission Meridian Energy[14] seeks to have the Commission revise its guidelines in relation to HVDC charges on the grounds that:

- The Government Policy Statement (GPS) has been revised and indicates greater commitment to renewable energy and sustainable development;
- Further analysis shows that the proposed HVDC charge will reduce the national total of renewable energy; and
- Further developments in the area of transmission regulation are highlighting inconsistency with the rest of the regulatory regime.

Firstly, it is worth noting that the Commission invited submissions on the proposed TPM and consultation paper. The Commission did not invite submissions on the transmission pricing guidelines but this is what Meridian has largely provided. Very few of the views we put forward in relation to the pricing guidelines were accepted by the Commission, and on one matter Meridian is now attempting to promote we actually agree with its view. However, the consultation process, with its opportunities for submissions and cross submissions, would quickly become a farce if we and others adopted Meridian's approach and submitted papers with contents that are largely off the topic because we did not agree with a decision made by the Commission at an earlier stage.

Secondly, Meridian's first two reasons for suggesting the Commission should revise the guidelines in relation to HVDC charges appear to suggest that the GPS should alter the decisions of the Commission on its guidelines. The emphasis on renewable energy in the revised GPS might mean that the Commission is to favour such investments when efficient to do so. However, this was the requirement on the Commission previously, so the revision to the GPS should not alter the Commission's judgement in relation to the guidelines.

Alternatively, it might be thought that the new GPS is indicating the Commission should favourable renewable energy, even if it is inefficient to do so. This seems to be implicitly what Meridian believes by its reference to a guideline not being appropriate because it "will reduce the national total of

[14] http://www.electricitycommission.govt.nz/pdfs/submissions/pdfstransmission/tpm-Jan07/Meridian.pdf p.1.

renewable energy”.[15] This interpretation can be ruled out, however, because it would make the GPS inconsistent with the Act. The GPS objectives and outcomes are something the Commission is required to give effect to, however, they “must be consistent with … the functions, principal objectives, and specific outcomes of the Commission.”[16] The functions, specific objectives and specific outcomes of the Commission are full of references to efficiency. A suggestion that the GPS is sanctioning inefficient investment is not tenable in light of the Act.

Trustpower has also lodged a submission which focuses heavily on the HVDC guidelines. It has also mistakenly suggested these were set two years ago in February 2005.[17] As a result of litigation, the Commission was required to reconsider its original guidelines. This it did and so its current guidelines were issued in March 2006, less than one year ago.

9. Connection and interconnection charges

The data Transpower provides suggest that the aggregate of connection charges will fall by $8.3m and the aggregate of interconnection charges will rise by approximately the same figure as a result of the proposed change in TPM.[18] These movements are contrary to what one would expect from a change designed to make the definition of connection assets as deep as possible. This matter seems to us to require explanation from Transpower.

10. Coincident peaks

10.1 AMD v RCPD

We have read the various submissions relating to whether regional coincident peaks are the best basis for allocation of interconnection costs or not. We note that some parties favour the approach; others suggest it will lead to perverse results, still others favour the previous method and some have come up with their own suggestion.

The lack of consensus reflects that every administrative procedure to share among parties the costs of shared assets will tend to have some deficiency or inadequacy. Perfection and complete satisfaction is not likely to be achieved

[15] Reducing the level of renewable energy may be perfectly consistent with seeking efficiency if, for example, a proposal to construct a renewable source requires the construction of so many transmission assets that the total cost of the energy it produces is greater than non-renewable alternatives, even after the costs of emissions are fully accounted for.

[16] Electricity Act1992, section 172 ZK(4)

[17] http://www.electricitycommission.govt.nz/pdfs/submissions/pdfstransmission/tpm-Jan07/Trustpower.pdf p.1.

[18] www.electricitycommission.govt.nz/pdfs/opdev/transmis/pdfsconsultation/tpmnov06/Attach1-%20Comparison-of-Price-Components-by-Region-for-TPM-and-CPM.pdf

in this context by administrative rules. There are two corollaries of this observation we will mention.

Firstly, one way to reduce the difficulties over time is to minimise the charges that fall into the interconnection category which are required to be allocated according to administrative rules. Adopting a “but for” approach to defining connection assets and allocating the costs of new investment when the “causer” or “user” can be identified will tend to do this.

Secondly, the more closely connected the variable used for the allocation of cost is to the actual cost drivers the more satisfactory the outcome is likely to be to most parties. In the current context, the regional coincident peak method of allocating seems likely to be more satisfactory overall than the current anytime maximum demand basis. This is not to say it will not create some perverse outcomes and incentives and that the Commission may find some it thinks are unacceptable given its objectives and specific outcomes.

10.2 Meridian’s net measurement proposal

Meridian queries whether it would be better to determine the regional coincident peak demand by excluding from the calculations of peak demand any generation provided by generators connect to the grid in the region. Its rationale is that peak demand measured net of local generation is a better signal of when interconnection assets are most valuable than peak demand measured gross of generation.[19]

One of the consequences of the Commission adopting this approach would be to remove any incentive on load to “encourage” grid-connected generation to locate close to it. Indeed, since Meridian’s logic surely applies equally whether the generation is connected to the grid or not, the net measurement regime, if adopted, would obviously be extended to netting off the output of embedded generation.

Under a net measurement approach, load could not benefit in terms of interconnection charges by reducing its general reliance on the interconnection grid assets by the location of generation close to it. This is because all output from that generation would be discounted in calculating interconnection charges. Such a method of measurement would, for example, provide benefits to a generator which will be dependent on the interconnected grid to deliver the output from its current and proposed plants to where load is located. It would do this by reducing incentives for load or those serving load to encourage or pay other generators to locate closer to them. The net measurement approach would not promote, however, an electricity system with the dynamically efficient mix of grid

[19] http://www.electricitycommission.govt.nz/pdfs/submissions/pdfstransmission/tpm-Jan07/Meridian.pdf, pp.38-9.

and transmission alternative assets. We urge the Commission to reject this proposal from Meridian.