



MAJOR ELECTRICITY USERS' GROUP

7 December 2009

Kate Hudson
Electricity Commission
By email to submissions@electricitycommission.govt.nz

Dear Kate

Submission on Transmission Pricing Review

1. This is a submission by the Major Electricity Users' Group (MEUG) on the Electricity Commission consultation paper "Transmission Pricing Review: High-level options", published 9th October 2009¹ along with a number of other papers, most notably a report by Frontier Economics, "Identification of high-level options and filtering criteria", September 2009.
2. MEUG welcomes the Commission review because:
 - a) Some transmission investment decisions and the future allocation of those costs have been less than optimal. For example allocating the \$824m cost of the North Island Grid Upgrade (NIGU²) cost to all consumers was inferior to the alternative of charging the parties that benefit from that upgrade. Had the beneficiaries been aware they would bear the full cost, other lower cost alternatives or later timing for new assets may have emerged. This is an example of how locational signals and cost allocation could be improved.

The MEUG submission to the Commission "Comments on 'big picture issues' for the electricity sector" dated 13th October 2008 listed four key actions. One of those was:

"Improve locational pricing signals for the AC network. This would include a review of the contract counterparties. Experience with the HVDC has shown that if the correct counterparties are identified, then there is robust countervailing pressure on Transpower to consider all options. This pressure is almost non-existent on the AC network."

The consultation paper discusses this issue.

- b) MEUG was not satisfied that the initial Transmission Pricing Methodology was optimal though we were encouraged that at the time the Commission recognised that a future review should consider a deeper connection definition to shrink the interconnection asset base³. The consultation paper discusses this issue.

¹ Refer <http://www.electricitycommission.govt.nz/consultation/tpr/view>

² ie the 400 kV line Whakamaru to South Auckland and associated works

³ Electricity Commission, Transmission Pricing Methodology - Final decision paper, 7th June 2007, paragraph 3.3.9

- c) Similarly MEUG was not satisfied that the initial Benchmark Agreement provided an incentive on Transpower to improve service delivery though the Commission did indicate later reviews might consider an Unqualified Service Guarantee or insurance option⁴.

The MEUG submission to the Commission "Comments on 'big picture issues' for the electricity sector" dated 13th October 2008 listed four key actions. One of those was:

"Continuous improvement of the Benchmark Transmission Agreement. The Commission has indicated it would consider improvements such as an Unconditional Service Guarantee. We think work on those changes needs to commence in 2009/10 because the changes will take some time to develop, consult and implement. The sooner we can create more contractually based incentives on line monopolies, the better."

The consultation paper discusses this issue.

3. MEUG agrees, subject to the caveat in paragraph 4 below, with the approach taken in the consultation paper⁵:

"In order to distinguish high-level option issues from more detailed considerations, Frontier's approach has been to identify locational cost allocation issues as high-level and price structure issues as lower level. That is, the focus has been on the degree of locational differentiation of transmission charges."

4. The caveat is that as a smaller set of options are considered for detailed consideration; then at that point details such as pricing structure that underpin the high level option are likely to become important.
5. This high-level review of transmission pricing and focus on locational differentiation of transmission charges should not be considered in isolation. Integrated improvements to the transmission pricing methodology (TPM), Transmission Benchmark Agreement, management of energy market basis risk due to transmission constraints, voluntary initiatives for improving price discovery in the energy market (eg more forward market nodes and one-way trading) and ensuring energy prices reflect the value of lost load when a supply shortfall occurs need to be carefully considered.
6. In parallel to this pre-review of TPM by the Commission ahead of considering whether a formal TPM review should be initiated, MEUG has participated in the Supplier CEO Forum initiated and funded review of transmission pricing. MEUG commissioned three reports by Dr Brent Layton of NZIER to comment on work by advisors to the Supplier CEO Forum and a request of the Supplier CEO Forum for an input from NZIER. Those three reports were:
- NZIER, report to MEUG, "New Zealand Transmission Pricing Project – A Review of the NERA Report to the Electricity Industry Steering Group", 1st September 2009;
 - NZIER, report to MEUG, "Alternative Options for Transmission Pricing – Suggestions for the Review by the CEOs' Forum", 8th October 2009; and
 - NZIER, report to MEUG, "Competitive neutrality for the connection of generation", 8th October 2009.
7. Copies of these reports are attached because we either refer to those in this submission or they are useful background material.
8. Note that the Supplier CEO Forum review of transmission pricing has been limited in scope compared to the Commission consultation paper. For example the question of linking transmission pricing with service quality has not been considered by the Supplier CEO Forum.

⁴ Electricity Commission, Final decision paper for the Benchmark Agreement and Interconnection Rules, 21st May 2007, paragraphs 17.3.2 and 17.3.3

⁵ Consultation paper, paragraph 10

9. Responses and comments to the consultation paper questions follow:

Question	Response	Comment
1. To what extent do you agree that nodal prices can provide efficient signals for the use of the transmission network?	Nodal prices partly, rather than fully, provide efficient signals for transmission.	Agree with the discussion in paragraph 3.2.4 of the paper that economies of scale, over-caution by network planners and regulators, and lack of a price to reflect the value of lost load when demand exceeds supply lead to the conclusion that nodal prices can only partly provide efficient price signals for transmission.
2. To what extent do you agree that nodal prices can provide efficient signals for investment in generation and load projects?	Nodal prices partly, rather than fully, provide efficient signals for demand and supply investment.	The status quo TPM assists efficient selection of generation between Islands. Within each Island nodal prices are weaker resulting in under-investment of generation close to demand, eg the NAaN, NIGU, 2x100 MW OCGT and upper South Island generation cases discussed in box 3 of the consultation paper.
3. Do you consider that the nodal prices in New Zealand may be inappropriately suppressed due to the transmission system being augmented ahead of demand?	Yes.	
4. Can you provide examples where a transmission alternative could have been undertaken instead of an investment in the grid?	Difficult to quantitatively assess as would have to revise GIT assuming say the theoretically best option of Augmented nodal price signals.	For a subjective view of an example, refer comments on NIGU in paragraph 2 a) of this submission.
5. Do you agree that if locational transmission pricing signals are required to promote efficient participant investment decisions, both generators and loads ought to face these signals?	Yes. It is more critical to have locational transmission pricing signals for generators because differential transmission costs are unlikely to be a major factor in decisions of where load will locate, except for very energy intensive large industries	Changes to consider could include deeper connection charges for generators and loads (eg using the "but for" approach) for new investment.
6. Are there any other jurisdictions whose electricity market arrangements should be examined to assist in the development of high-level transmission pricing	Not aware of any others.	

Question	Response	Comment
options for New Zealand?		
7. Do you agree that the summarised issues Frontier identified from the Strata report are correct and relevant?	Agree.	
8. Are there other issues with the current transmission pricing that you think should be considered at this high-level options stage?	No.	
9. Do you think it is appropriate to focus on locational cost allocation issues – as opposed to pricing structure issues – at this high-level stage of the review?	Appropriate for high level evaluation.	Once options for more detailed analysis are chosen, the details of each option including price structure and linkages with service quality will become important.
10. Are there any particular Pricing Principles that ought to be given precedence over others?	The Pricing Principles need a review because they do not at present provide the best balance. Refer MEUG answer and response to question 11.	MEUG agrees with Frontier and the EC (paragraph 3.2.22 of the consultation paper) that the Pricing Principles are superior to the GPS requirements because the latter do not consider use of system agreements or linkages with FTR (or other locational price risk mechanism).
11. Do you agree that it is not appropriate to review the Pricing Principles at this time? If not, why not?	Disagree.	The Pricing Principles need to be reviewed to make sure that they are much clearer that beneficiaries pay. For example the Pricing Principles could be formulated to include the objective that prices should be set in a manner comparable with how they would be set if they had been determined by market negotiations (in the absence of free rider and hold out problems)
12. Do you think existing TPM, combined with the GIT and nodal pricing provide appropriate operational and investment signals to existing and prospective participants? Please give examples or reasons for your answer.	Current arrangements could have improved locational signals.	Refer shortcomings of existing nodal prices and TPM in answers to questions 1 and 2.
13. If not, are there relatively minor modifications that could be made to the existing regime to enable it to provide appropriate locational signals?	Yes.	Changes that could be considered include: <ul style="list-style-type: none"> ▪ A “but for” approach. Refer also MEUG response to question 20. Note this may not be a “minor modification”, but it should still be assessed;

Question	Response	Comment
		<ul style="list-style-type: none"> ▪ Charging generators part or all interconnection charges (possibly disaggregated by Island); ▪ Improving linkage with terms and conditions of transmission agreements and in particular service quality/liabilities.
14. Even if the existing approach does not provide efficient signals to participants, to what extent are participants' investment decisions likely to be distorted as a result?	See question 12.	
15. Assuming there is a need for a locational element to transmission pricing, does the tilted postage stamp option provide a reasonable trade-off between signalling objectives and simplicity?	No.	<p>MEUG agrees with the observation by Frontier economics⁶</p> <p><i>"Tilted postage stamp approaches are unlikely to be theoretically precise because a participant's distance from the main grid, or its longitude or latitude, do not bear a linear relationship to transmission costs and needs in New Zealand, given the extreme variations in geography and resource locations."</i></p> <p>Tilted postage stamp approaches will also prove difficult to adapt (or at least require significant regulatory intervention) should generation and load patterns change. For example a major gas discovery on the east coast of the North Island could result in new users' and gas fired power stations on that coast, new grid investment and a change in the general direction of power flows.</p>
16. What are submitters' initial views on the economic merits of the augmented nodal pricing approach and are these likely to be outweighed by practical implementation considerations?	This is a useful theoretical benchmark though implementation appears to have practical limitations.	Agree with Frontier and the EC that difficult to assess precisely variance between the status quo or any of the other options and this theoretical "best" option, and also may have practical limitations in how to implement.
17. Assuming there is a need for a locational element to transmission pricing, is load-flow modelling a reasonable basis for cost allocation?	MEUG agrees improvements to the locational signal in transmission pricing is desirable; however there are better	Load flow approaches have several shortcomings, eg they require the transmission company supplying detailed information to the regulator that then has to be validated and approved (particularly for the forward looking cost models).

⁶ Frontier Economics, report to EC, "Identification of high-level options and filtering criteria", September 2009, p40

Question	Response	Comment
	options than load flow based approaches.	Load flow approaches are very unstable year to year. Frontier Economics noted ⁷ “... <i>transmission charges – being unhedgeable – should be as predictable and stable as possible to enable investors to make robust decisions.</i> ”
18. If so, do you have a view on whether the CRNP, ICRP or an alternative methodology is preferable?	Not applicable.	Refer MEUG comment to question 17.
19. Are there any other high-level options that the Commission should consider?	Not aware of any others.	
20. Is there merit in pursuing a PJM-style ‘deep’ connection option in the New Zealand market?	Yes.	The PJM market is different from New Zealand (eg PJM has a capacity market) and therefore adopting the PJM “but for” approach without changes might not be appropriate. Nevertheless still worth considering. Note NZIER recommended for the AC network ⁸ : “ <i>The current connection charges supplemented with additional charges on new generators and new load over a de minimus level, based on the ‘but for’ approach.</i> ”
21. Are there aspects of connection charging that should be reviewed? If so, please give arguments why.	Yes with respect to HVDC charges.	NZIER have suggested HVDC charges be based on either ⁹ : <ul style="list-style-type: none"> ▪ A capacity rights basis; or ▪ An arbitrageur approach. Both approaches facilitate market discovery by parties that benefit from the HVDC and a market value for the utility they derive. MEUG notes that NZIER have prepared a report on the mechanics of how a HVDC Capacity rights regime might work for Rio Tinto Alcan New Zealand Ltd to be appended to their submission on the Transmission Pricing Review. The NZIER work demonstrates that a capacity

⁷ Ibid, p24

⁸ NZIER, report to MEUG, “Alternative Options for Transmission Pricing – Suggestions for the Review by the CEOs’ Forum”, 21st September 2009, section 4.2 and recommendations in section 6.

⁹ Ibid, section 4.1.3

Question	Response	Comment
		rights basis for charging existing and new HVDC assets is more than just a theoretical option. Implementation would be relatively straight forward and the resulting "prices" for use of the HVDC would be derived by market participants. This is likely to be a more durable longer term solution than most other proposals (except possibly the arbitrageur approach).
22. Is it necessary or worthwhile to alter or clarify the existing treatment of transmission alternatives?	Yes.	It may be that having no transmission alternatives approved over the last few years has been the optimal outcome. But that is very unlikely and therefore this needs to be checked.
23. Should either a USG or a voluntary insurance scheme be considered within the review?	Yes.	Service and price should be considered simultaneously.
24. Are there other options for linking service quality and pricing that you think the Commission should consider? If so, please give details.	Not aware of any others.	
25. Do you agree that the Commission should consider a methodology for allocating the costs of existing and new static reactive power assets as part of the review?	No.	This work is needed but may be more efficient to consider reactive power pricing and incentives as a separate work stream. MEUG understands that the primary issue with a market approach to reactive power is the high losses in its transmission leading to acute market power issues. That is why the original market design excluded allocating costs for reactive power.
26. If locational hedging instruments were introduced that had the effect of muting nodal price signals, do you consider that locational signals should be enhanced through transmission pricing?	Yes.	
27. Do you consider that the criteria outlined in this paper are appropriate criteria for filtering high-level options? Please outline your reasoning.	<p>Unsure about criterion 8 – stakeholder acceptability.</p> <p>Assume the ultimate criterion is a cost-benefit-analysis (refer question 28).</p>	<p>If two options had identical net benefits and were equivalent for all other criterion, then criterion 8 – stakeholder acceptability could be a useful way to decide between the two.</p> <p>If one option had a higher net benefit than a second option, but the second one had higher stakeholder acceptability, the first option should be implemented.</p>

Question	Response	Comment
28. Are there other criteria that you consider might be appropriate?	Standard cost-benefit-analysis.	

10. In summary MEUG welcomes the Commission's high level review of transmission pricing and the linkages made to service quality in particular. It is important changes to transmission pricing, managing basis risk, voluntary price discovery initiatives in the energy market and having prices reflect scarcity values when blackouts occur are carefully aligned. Of the four high-level options in the consultation paper, MEUG notes:

- a) Using load flow approaches would be a significant departure from the existing market design. The other options are likely to require less change from the status quo and also have greater benefits. Further work on load flow approaches is probably not warranted;
- b) The Augmented nodal price signal option is¹⁰ "... expected to produce the most theoretically accurate economic signals of all the options ..." However it can probably be ruled out because implementation is problematic. The Augmented nodal price signal option though is useful when assessing how to incrementally improve the status quo.
- c) Assuming the factual is to incrementally change the status quo, then a form of tilted postage stamp pricing along with a change to the energy market such as zonal pricing is the best counterfactual. MEUG supports comparing these two options in more detail.
- d) At this stage MEUG believe the option to incrementally improve transmission locational pricing signals is a better approach than a tilted postage stamp approach. By incrementally improving transmission locational pricing signals MEUG means:
 - A "but for" test for new AC investment;
 - Deeper connection definition for sunk AC assets;
 - A more market based approach to pricing HVDC (ie capacity rights or arbitrageur).
 - Review of transmission alternatives; and
 - Better alignment with contracted service obligations.

The benefit of continuing analysis of a tilted postage stamp approach is to provide a counterfactual or likely next best option to compare how to incrementally improve the status quo. There would have to be very compelling new benefits with tilted postage stamp that had not already been considered for MEUG to reverse this view.

11. MEUG suggest this work should continue to be a top priority for the Commission and on the analysis to date this process should lead onto a formal review of the Transmission Pricing Methodology.

Yours sincerely



Ralph Matthes
Executive Director

¹⁰ Frontier Economics report, p40