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Submissions
Electricity Authority
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Transmission Pricing Methodology: Cost Benefit Analysis (CBA)

Thank you for the opportunity to provide feedback on the Electricity Authority's (**Authority**) Transmission Pricing Methodology (**TPM**): CBA working paper (**working paper**).

Any change to the TPM must deliver on the Authority's statutory objective

We are pleased to see that the Authority has taken on board a number of the substantial concerns raised by stakeholders about the CBA included in the Authority's October 2012 'TPM: issues and proposal paper'. From Contact's perspective, in order to ensure that any future TPM is stable and durable, it is important that not only does the proposed TPM have the broad support of industry but that it delivers on the Authority's single statutory objective, that is "*to promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers*".

Support for CBA ultimately depends on how it is applied

From Contact's perspective, while much of the framework proposed in the working paper has merit, we believe there are a number of issues that need to be addressed. We have highlighted these in our detailed response below. That said, we are particularly pleased to see the Authority move away from a purely top-down approach to modelling benefits and costs, to an approach that also includes bottom-up analysis. Ultimately, however, our support for this or any alternate CBA depends on how it is applied. For that reason we would be disappointed if the Authority classified this submission as wholly supportive of the Authority's revised approach and method for the CBA.

Before we answer the specific questions posed by the Authority, we make the following general comments.

Problem definition

Contact agrees with the Authority that "inefficiencies in transmission cost recovery under the status quo result in inefficient investment in, and operation of, the electricity industry". In our view this is best demonstrated by the effect that the Historical Anytime Maximum Injection (**HAMI**) charge continues to have on the dispatch of Contact's Clutha generation. We agree with the Authority that the HVDC charge, in particular, results in inefficient investment in new South Island generation and inefficient operation of generation plant in the South Island. In our view, this problem can be easily solved by treating the HVDC the same as any other transmission asset.

Generator behaviour is one of the key reasons that bottom-up analysis must be employed

Contact is concerned with the **behavioural assumptions** that the Authority makes, particularly in respect of generator bidding behaviour. We note particularly paragraphs 6.14 and 6.15 of the working paper. Paragraph 6.14 states that in the short run:

> *(a) Remote generators facing higher transmission costs may raise their bid prices in order to recover this increase.*
>
> *(b) Within-region generators facing lower transmission costs may seek to improve their competitiveness by reducing their bids.*

Bidding behaviour depends on the nature of the generating plant, the composition of the generator's portfolio, and the extent to which transmission charges can be avoided or minimised by changing bidding behaviour. If transmission charges are fixed, then baseload and mid-merit plant will not significantly change their bidding behaviour. Fixed transmission charges imposed on these plant are purely a wealth transfer from producers to consumers. However, peaking plant may incorporate transmission charges into their bid prices. For example, if Whirinaki faced additional transmission charges as a result of the proposed methodology, then Contact would have to increase the dispatch price to ensure that the plant at least broke even. This means that peak prices, at times of shortage, will be likely to increase further to recover transmission charges.

Whether these changes result in an increase in productive efficiency critically depends on whether the remote generator or the in-region generator has the lowest variable cost (not marginal cost) when adjusted for average electrical losses (not marginal losses). Contact notes that New Zealand's remote generation plant tend to be highly efficient hydro and geothermal generation plant with low variable costs. If these remote plant were to behave as the Authority suggests and reduce generation, then there would be a reduction in productive efficiency.

The impact of potentially variable transmission charges on remote generation is illustrated by the current HVDC HAMI charge. As we have stated previously, the effect of this charge is that Contact ensures that injection from its South Island plants does not exceed the recorded HAMI and limits peaking capacity by ~100MW. We also understand that optimisation of transmission charges is an active strategy for embedded generation.

The true implications of this behaviour are that when the proposed TPM suggests that a remote generator benefits from a transmission line, the remote generator will reduce generation, leading to under-utilisation of the line. Conversely, load benefitting most from a transmission line will provide the greatest price signal for increased embedded generation, again reducing utilisation of the transmission line.

Any analysis of a counterfactual TPM must take account of changes in generator bidding behaviour. This is one of the key reasons that a bottom-up analysis must be employed.

Bottom-up analysis approach preferred

Contact is pleased to see the Authority move away from a purely top-down approach to modelling benefits and costs, to an approach that also includes bottom-up analysis.

Option selection

In Section 5 the Authority proposes to examine a "spectrum of options", focussing on:

- *recovering the costs of transmission services on a more efficient basis, and*
- *more emphasis on recovering transmission costs from the competitive sector (i.e. generators and retailers).*

From our perspective the Authority's proposals are controversial, and the Authority should reconsider its position if it intends the results of the CBA to be compelling.

The consensus is that transmission asset costs meet the textbook definition of a sunk cost in the time frame that is relevant for the analysis. This means that a "more efficient basis" for recovering the cost of transmission services must seek to recover those costs in a way that does not alter generation or purchase decisions over the time frame that those transmission costs are sunk. A good first step is, as we have already noted, to remove the current HVDC charge that incentivises Contact to under-utilise Clyde and Roxburgh power stations even though this has no effect on the asset costs for the HVDC.

Sunk costs and regulatory overlap

While Contact welcomes the Authority's proposal to prepare working papers on issues that it considers are controversial, we are concerned that a number of these issues have been long settled and reopening them is a further impost on the time and resources of market participants.

Contact also notes that the issue of sunk costs was canvassed extensively by the Commerce Commission during the Input Methodologies process. In our view it would be unfortunate if one regulator held the view that network assets were sunk, while another regulator with related responsibilities held that they were not. We also suggest that the question of whether costs are sunk depends entirely on the time frame of the analysis. In the short run – the half-hour dispatch period – there is absolutely nothing that a generator, retailer or load can do to cause an increase or decrease in transmission asset costs. However, in the long run all costs are variable.

A well-structured CBA should be capable of taking this distinction between the short run and long run into account. In particular, a bottom-up model would only "invest" in transmission expansion when well-specified decision rules were met, which would include consideration of projected demand and likely new generation.

Retail risk

Equally important in assessing the impact of TPM changes will be the impact on retail risk, particularly for small and undiversified parties, and the risk for directly connected consumers. Volatility on a half-hour by half-hour basis is not particularly important to these parties, but volatility on a monthly basis is.

Dry and wet years have an enormous impact on electricity prices in New Zealand's hydro-dominated system, with months of very high or very low wholesale electricity prices possible. Even with the financial hedges available, extended dry periods can have very serious adverse cash flow consequences for a net retailer, as recent history has shown with large net retailers exiting the market.

A robust bottom-up model is required in order to understand:

- what effect the proposed TPM will have on price volatility in dry years
- whether the proposed methodology will further exacerbate price swings or dampen them
- how retailers and industrial load will respond.

Comments on the Authority's responses to criticisms and suggestions

In this section we provide comments on selected issues listed by the Authority. Our comments are as follows.

Methodological and conceptual	
MC4:	Contact agrees with the Authority that transmission pricing affects more than just the timing and location of major transmission and generation investments. As we have noted in previous submissions, use of the HAMI charge to determine HVDC charge discourages Contact from operating its South Island generation at full capacity (i.e. transmission pricing affects the utilisation of existing assets by ~100MW), and embedded generation is often built and run to avoid transmission charges (i.e. transmission pricing affects small-scale generation).
MC7:	Contact agrees that further work on embedded and distributed generators is required and we are pleased to note that the Authority will issue a further working paper on this issue.
MC10:	Contact believes transmission assets to be sunk costs.
MC11:	Contact agrees that the total welfare gain is the relevant criterion for cost-benefit analysis. However, Contact is concerned that the Authority may be counting wealth transfers as an efficiency/ welfare gain, and it is not clear that the Authority intends to calculate the change in consumer surplus and change in producer surplus that is the cornerstone of welfare analysis.
Technical issues	
T5:	Contact agrees that break-even analysis is not cost-benefit analysis and understands that the Authority must work through the Code Amendment Principles, which set out how to proceed in the event a CBA is inconclusive about the best option. However, we believe that a break-even analysis is an important sensitivity indicator. Given two reform options with the same net benefit, the one that provides a faster break-even is the one to be preferred. A long break-even period raises the risk that reform costs will be incurred but the system will be changed yet again before the long-term benefits can be realised. The Authority's proposals remain sufficiently contentious that it should be assumed that there is significant risk of future change.
T6:	Contact agrees that the effect of reform on risk profiles is an important issue.
T10:	One of the key implementation risks is that reform does not have solid cross-industry support and is reversed with a future change in strategic objective or governance of the Authority.