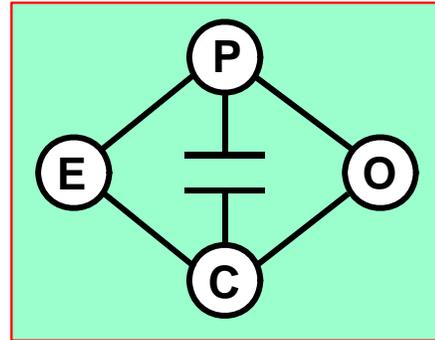


Submission on

Consultation Paper

Managing locational price risk
proposal



by

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Executive summary

This document is a response by members of the Electric Power Optimization Centre at the University of Auckland to the Electricity Commission's Consultation Paper "Managing locational price risk proposal" (The Paper) issued on September 13, 2010.

Our submission is limited to only those aspects of the proposal in which we have expertise. In particular, we make the following comments about the proposed design and implementation of Financial Transmission Rights (FTRs):

1. We agree with the Commission's choice of the inter-island FTR as the best option among the examined alternatives outlined in paragraph 14 of the Executive Summary of The Paper.
2. We are concerned that none of the options involved an FTR between hubs with static weights, or a standard FTR between two (or more) existing nodes. The Generation Weighted Average Price (GWAP) mechanism has been proposed as the preferred option without demonstrating its superiority over these simpler arrangements.
3. The Paper and accompanying documents do not appear to contain a concise self-contained mathematical description of the FTR coupon payment, or a similar description of a proposed auction mechanism.
4. The FTR instrument described in terms of power flows and "participation factors" appears to be closer to a flow-gate scheme than a financial transmission right. A purer FTR instrument between two existing nodes arguably carries less risk with greater simplicity, arguably increasing the likelihood of liquidity.
5. Any hedging instruments will face a risk of unforeseen consequences if agents exercise market power in the spot market. It is important that the industry devise appropriate market oversight processes to reduce the incentives for agents to exercise market power.

Responses to particular issues

Q1 Are there any other issues relating to the background, previous analysis and consultations that are relevant to consideration of the Commission's locational price risk management proposal?

We agree with the Commission's choice of the inter-island FTR as the best option among the examined alternatives outlined in paragraph 14 of the Executive Summary of The Paper. A restriction to two trading locations appears to offer simplicity, low risk and high probability of participation.

Market power

We agree that the inter-island FTR is the least likely of the options to introduce adverse market power effects, and that it is a pragmatic start. Nevertheless, theoretical market power concerns have been established in several papers (see e.g. [1] and [2] and the papers cited within). Electricity spot markets (and by implication FTR and contract markets) benefit from continual and ongoing market monitoring of market power. It is important that the industry devise appropriate market monitoring and oversight processes to reduce the incentives for agents to exercise market power.

Options and obligations

We agree that in the first stage of implementation, only obligation FTRs be offered in the inter-island FTR market. Option FTRs carry the risk of contributing to revenue inadequacy. On the other hand, the existence of option FTRs will contribute to an increase of traded volumes and liquidity in the FTR market. In general, liquidity tends to improve efficiency, and in standard FTR markets (such as the ones currently operating in the PJM and NYISO,) thinly traded volumes can cause inefficiency (see our response to Q13 below.)

Availability horizon

The Paper (page 38) states that the FTR availability horizon is to be 12 months initially (in the first year of operation,) and then 24 months thereafter. Over such a time horizon there is a significant chance that there may be changes made to the New Zealand electricity grid. If any changes are made, then firstly the change will have an impact on the expected coupon payment of the FTR. This may contribute to revenue inadequacy of the extant FTRs. On the other hand grid expansion might decrease coupon payments, possibly deterring some agents from participating in FTR auctions. It may also be worth noting that the FTRs sold in the PJM are for monthly duration, and in NYISO are for 1 year, 6 month and 1 month durations (there are secondary auctions that the extant long term FTRs can be traded in).

Q5 What other issues do you consider are materially impeding retail electricity competition and what priority should be attached to addressing them?

The Wolak report points out that our major generators of electricity often do not have diversified sources of generation. For example Genesis is currently chiefly a thermal generator and Meridian and MRP are chiefly hydro producers. Since hydro is the most significant source of electricity production in New Zealand, risk related to inflow scarcity has an adverse effect on the retail sector (in dry periods hydro generators may be more reluctant to enter into retail contracts).

Q10 Do you agree or disagree or have any comments on the FTR design details, and in particular on:

- (a) the proposed use of virtual GWAP hubs rather than nodes?
- (b) the proposed approach to management of revenue adequacy? and
- (c) the proposal to allocate residual revenue to Transmission customers, based on the TPM?

The proposed FTR design appears to be unnecessarily complicated and difficult to extend to include losses. What is proposed seems to be closer to a flow-gate mechanism. The appendix to this document describes a static hub-to-hub FTR instrument for which coupon payments can be determined without participation factors. This instrument is also easily extended to cover loss rentals, as explained in the appendix. Furthermore, conditions under which revenue adequacy are ensured for this design are established.

It is not clear whether the potential benefits from using a GWAP is worth the extra complexity. We wonder if most of this benefit might be gained by offering a single static FTR product between Benmore and Otahuhu, or Benmore and Whakamaru. This has a simpler coupon payment (encouraging participation) and arguably offers similar hedging opportunities to a product using two GWAP hubs.

Q11 Do you agree with the view that the inter-island FTR sufficiently concentrates competition for FTRs to limit the ability of Participants to abuse market power? If not why not?

We disagree with this view. In the New Zealand market MRP and Genesis are predominantly North Island producers and Meridian is predominantly a South Island producer. It has been established (see e.g. [1]) that a holder of an FTR with generation located at the downstream node on the FTR can have incentive to reduce production, drive their nodal price up, create a price difference between the upstream and downstream nodes and collect on the FTR coupon payment as well as spot market returns. All of the major generators, including Contact Energy who have generation distributed in the North and the South Island can utilize an inter-island FTR to exercise market power in order to maximize their returns on the combined spot market and the FTR coupon payment. The nature of the inter-island FTR is by no means immune to exercise of market power. Implementing a system of ongoing market monitoring is a simple approach to minimizing this risk.

Q13 Do you agree that the market monitoring regime should include full transparency of the FTR contract information? If not, then why not?

Auction inefficiencies and information

In a recent paper, Deng and Oren have shown that inefficiencies might occur in simultaneously feasible FTR auctions when bidding is thin. It can be shown that with the increase in the liquidity of these FTR markets that they become more efficient. One vital mechanism that serves to guide markets to efficiency is the availability of information. We strongly recommend that for both monitoring and efficiency purposes the traded volumes and clearing prices of FTRs be made publicly available. The Commission may want to consider formats such as available on the NYISO TCC website: http://www.nyiso.com/public/markets_operations/market_data/tcc/index.jsp

References

[1] Pritchard, G. and Philpott, A.B., On financial transmission rights and market power, *Decision Support Systems*, Volume 40, Issues 3-4, 507-515, 2005.

[2] Zakeri, G and Downward, A, "Exploring the strategic behaviour of FTR holders with market power", July 2010, Stochastic Optimization Ltd on behalf of Mighty River Power. <http://www.electricitycommission.govt.nz/opdev/wholesale/Hedge/transmission-hedges>

Appendix 1: On revenue adequacy of financial transmission right auctions