

Transmission Pricing Advisory Group ::: Meeting number two

Venue ::: Meeting room 1, Electricity Authority

Time and date ::: 09:00 to 16:00 ::: 24 February 2011

## Minutes

### Present

#### Members

::: Graham Scott (Chair)  
 ::: Bruce Girdwood  
 ::: Ray Deacon  
 ::: Guy Waipara  
 ::: David Reeve  
 ::: John Clarke  
 ::: Peter Calderwood (from 09:15)  
 ::: Bob Weir (from 10:30)

#### In attendance

::: Bruce Smith  
 ::: Peter Smith  
 ::: Katherine Moore  
 ::: Catherine Ross  
 ::: Lee Wilson  
 ::: Paul Foley  
 ::: John Culy  
 ::: Phil Bishop (for item 4)

### Apologies

::: Glenn Sullivan  
 ::: John Woods

The meeting opened at 09:10.

### 1 Welcome and introduction

The chair invited the group to share a few moments silence to reflect on the tragic Christchurch earthquake.

### 2 Minutes of the last meeting

The minutes of the 16 Feb 2011 meeting were approved with amendments:

- Item 1 should include two further affiliations/conflicts: John Clarke was a member and David Reeve a substitute member of the CEO Forum working group. Graham Scott has advised Business New Zealand on electricity issues.
- Item 6 should record that TPAG noted the on-going relevance of the pricing principles while the Code Amendment Proposal, Regulatory Framework for Transmission Pricing, is underway. The outcome of the Code Amendment Proposal will determine the final content of the analysis framework.

### 3 Regulatory regime changes

The Authority provided a paper on the regime changes to prompt discussion: 'Note on changes to statutory

framework. ‘

TPAG:

- agreed that TPAG was provisionally of the view that the changes in the statutory framework have not fundamentally changed the work undertaken to date on the review; and
- noted that the secretariat will need to fully document the basis for this view for approval by TPAG and that this should be included in the discussion paper. This documentation should build on the note provided but also include consideration of the reliability and competition limbs of the Authority’s statutory objective.

**Action**

Provide a paper for approval by TPAG of the basis of the view that the changes in the statutory framework have not fundamentally changed the work undertaken to date on the review.

**By**

Secretariat

**Date for action**

By next meeting

#### 4 Presentation on GEM analysis from stage II of the review

Authority senior economist, Phil Bishop gave a presentation on the GEM analysis.

TPAG:

- agreed that, based on the presentation, discussion and other work members are aware of, TPAG was provisionally of the view that the GEM analysis supports the conclusion that there is no justification in augmenting existing locational signals for economic investments.
- requested a paper for its approval that articulates this view. This paper should include what is causing the results of the analysis.

Members raised the following issues in discussions:

- *The use of the GEM model.* Members discussed whether it was appropriate to use the model to test whether locational signals through transmission pricing might be beneficial and the validation process for the model. Bruce Smith commented that GEM suggests sensible building patterns, that are to a significant extent being played out in reality.
- *Particular sensitivities that should be/have been tested.* Attendees suggested a number of factors that might influence results: exchange rates, carbon charges, large variations in costs for similar technologies (eg wind), less severe peak constraints, and use of stochastic optimisation. The Authority intends to complete sensitivity analyses on these where it has not already. Given results and testing to date, the analysts involved do not expect that any of these will yield materially different results.
- *CEO Forum Work.* Some members noted the similarities between the conclusions of the CEO Forum analysis and the GEM analysis, although the conclusions were drawn from different analyses.
- *What is causing the results.* Members noted that the value of transmission build is low compared to generation build, and that some technologies are highly location-specific.
- *Possible disbenefits of locational signalling.* The analysis had not shown that there was a disbenefit in existing locational signals( in particular the HVDC charge), but it had shown that it was possible that there was no disbenefit. Other analysis has been undertaken as part of the analysis of the HVDC charge.
- *Benefits v costs of locational signalling.* In drawing a conclusion about whether it is valuable to introduce

locational signalling or not, members recognised that any possible marginal benefits need to be considered alongside possible transaction costs.

**Action**

Prepare a paper for TPAG approval on the conclusion that there is no justification in augmenting existing locational signals for economic investments, the role of the GEM analysis in this conclusion and what environmental and market conditions are causing the results.

**By**

Secretariat

**Date for action**

By next meeting

## 5 Presentation from members on issues and options

A summary of the presentations made by members is attached to these minutes. These presentations were intended to prompt discussion and provide issues for consideration by TPAG. The problems with the existing HVDC charge and the urgency of resolving this issue was a common theme, although there was no consensus view on a potential solution.

As part of this agenda item the chair summarised discussions he had had with Transpower and Commerce Commission following the 16 February meeting.

- *Transpower*. Transpower is comfortable with the prescriptive nature of the guidelines although it has concerns that the existing guidelines are conflicting. Transpower is also comfortable with options that are easy to implement and it could progress some development work on these options quicker than is estimated in the timetable.
- *Commerce Commission*. There is a need to match what TPAG is doing with what the Commerce Commission is doing on transmission investment decisions (Capital Expenditure Input Methodologies).

Other issues discussed as part of this agenda item are recorded with those discussed in item 7.

**Action**

Provide breakdown of transmission revenue requirement

**By**

John Clarke

**Date for action**

By next meeting

## 6 'Strawman' options

In order to prompt discussion and encourage the debate of controversial issues, the Authority representative, Bruce Smith, presented a transmission pricing 'strawman'. The 'strawman' and any content of this presentation should not be interpreted as representing the views or policy of TPAG, the Electricity Authority or the TPAG secretariat. Issues discussed by TPAG under this agenda item are included in the issues recorded in item 7.

In summary, the strawman suggested:

- That transmission pricing should be based on the status quo, but with HVDC costs allocated to SI generations on MWh.
- That existing regulatory interventions (ie the transmission alternatives regime) are significant in considering the benefit from signalling reliability transmission investments.
- That economic modelling indicates no benefit for signalling economic transmission investments.
- That costs should be postage stamped, except where beneficiaries can be identified without imposing

significant cost.

- That a consistent regulatory response is for SI generators to pay HVDC cost, and connected parties to pay deep connection, since they are beneficiaries.

## 7 Workshop discussions

This section of the minutes records a summary of the issues discussed during and following agenda items 5 and 6. TPAG requested papers from the secretariat on some of the issues discussed. These are set out in the actions below.

Members discussed the following issues:

- *Who are the beneficiaries of the HVDC?* The discussion of this issue considered the following:
  - whether there were other beneficiaries beyond the SI generators;
  - that the grid investment process considers the benefits to NZ Inc, not just to individual beneficiaries;
  - that the SI generators' analysis concluded that they would not have independently invested in the HVDC upgrade;
  - that there are other benefits from transmission other than energy transfer; and
  - that there is a divergence between the private and public value of reliability.
- *Whether the DC link can be viewed differently from other assets for transmission pricing.*
- *The differences between the current environment and the previous environment.* The current environment is one of regulated transmission cost allocation and regulated transmission investment, the previous environment sought a contractual model where contractual parties had to agree to investments. The regulatory environment enables investments to be more easily made ahead of time and has an NZ Inc focus.
- *The materiality of the asset/hedge swaps.* This has had an impact on retail competition, but is probably not relevant to the HVDC link issue.
- *The application of the statutory objective with its three limbs and the requirement to have an efficiency benefit for any changes to transmission pricing.* Attendees suggested possible impacts on efficiency extend to things such as durability/credibility of regulation, and the 'demonstration effect'. Attendees discussed the requirement for any changes to the methodology to be justified in terms of efficiency, and that the requirement for considering the impact on dynamic efficiency is important.
- *The ability of participants to pass-through HVDC charges.* This discussion touched on whether the SI generators pass-through any portion of the costs and whether other participants – such as all generators and lines companies - would be able to pass through costs.
- *Price shocks and transitional options.* Attendees discussed price impacts resulting from wealth transfers. In the event of price shocks, some members suggested possible transitional options such as grandfathering or splitting the allocation of charges for existing and new HVDC assets.
- *The impact of the HVDC charge on SI investment.* Ray Deacon wrote to members prior to the meeting setting out his views on the alleged asymmetric impact of HVDC costs on South Island generation investment. Guy Waipara and John Culy provided analyses in response. Members discussed the generator investment processes and the different counterfactuals presented by Ray, Guy and John.

- *The impact a MWH charge may have on managing water.*
- *The differences between previous load flow analysis-based approach and flow tracing.* Two key differences are: first, under the flow tracing only those assets that are used by a concentration of participants would be allocated and second, the flow trace would be calculated based on half-hourly data directly from SPD.
- *Static reactive compensation.* The current arrangements are punitive, and a charging regime incentivising efficient behaviour would be preferable. The issue could be progressed by a working group involving distributors.
- *Deep v shallow connection.*

Attendees made the following points on considering the benefits of signalling reliability transmission investments :

- Although the transmission alternative regime already exists, its cost and effectiveness should be considered a factor; the costs may be avoidable.
- Transpower has set up a demand-side management scheme in the Upper North Island which should be taken into account when considering incentives for transmission alternatives.

Actions	By	Date for action
Provide papers to TPAG on the following issues: <ol style="list-style-type: none"> <li>1. A description of what postage stamping is, including descriptions of the possible variations of postage stamping.</li> <li>2. The link between efficiency and beneficiary pays.</li> <li>3. The differences between the HVDC link and other assets, as they are relevant to transmission pricing.</li> <li>4. Possible price shocks to consumers from alternative HVDC options, their impact on dynamic efficiency and whether there may be transitional solutions to possible price shocks.</li> <li>5. The costs and benefits of a move from HAMI to MWH charging.</li> <li>6. The impact that the HVDC charge has on competition in SI generation investment.</li> </ol>	Secretariat	By next meeting
Add an item on deep v shallow connection to the agenda for the next meeting.	Secretariat	By next meeting
Investigate process for setting up a working group to assess static reactive compensation options, and discuss with Carl Hansen.	Secretariat	By next meeting

## 8 Next steps

The next meetings are 14 March 2011 and 25 March. The 14 March meeting will discuss the papers outlined in the action points and, if possible draft sections of the discussion paper. The Secretariat will circulate papers for e-mail comment in advance of this meeting, if possible.

Meeting closed 16:00

### Schedule of actions

1.	Provide a paper for approval by TPAG of the basis of the view that the changes in the statutory framework have not fundamentally changed the work undertaken to date on the review.	Secretariat	By next meeting
2.	Prepare a paper for TPAG approval on the conclusion that there is no justification in augmenting existing locational signals for economic investments, the role of the GEM analysis in this conclusion and what environmental and market conditions are causing the results.	Secretariat	By next meeting
3.	Provide breakdown of transmission revenue requirement	John Clarke	By next meeting
4.	Provide papers to TPAG on the following issues: a) A description of what postage stamping is, including descriptions of the possible variations of postage stamping. b) The link between efficiency and beneficiary pays. c) The differences between the HVDC link and other assets, as they are relevant to transmission pricing. d) Possible price shocks to consumers from alternative HVDC options, their impact on dynamic efficiency and whether there may be transitional solutions to possible price shocks. e) The costs and benefits of a move from HAMI to MWH charging. f) The impact that the HVDC charge has on competition in SI generation investment.	Secretariat	By next meeting
5.	Add an item on deep v shallow connection to the agenda for the next meeting.	Secretariat	By next meeting
6.	Investigate process for setting up a working group to assess static reactive compensation options, and discuss with Carl Hansen.	Secretariat	By next meeting

## Summary of member presentations

Member	General views	Options
Guy Waipara	<ul style="list-style-type: none"> <li>• There is no real benefit in additional locational signalling for new investment; other investment drivers are more important.</li> <li>• The HAMI-based HVDC charge distorts the market by creating disincentives for peak to come to market and creating inefficient investment signals through the North-South locational signal and creating a competitive advantage for Meridian in the South Island.</li> <li>• Deeper v shallow connection is a second-order issue for NZ Inc – however you define the boundary you will always have oddities.</li> </ul>	<ul style="list-style-type: none"> <li>• Postage stamping for HVAC assets.</li> <li>• Explore alternatives to the status quo for HVDC assets.</li> </ul>
John Clarke	<ul style="list-style-type: none"> <li>• The HVDC charge is the urgent item, but a decision needs to be robust and follow due process in order to avoid judicial review.</li> <li>• The overall transmission pricing framework is sound, but could be tweaked.</li> <li>• Generation investment is largely driven by energy prices not transmission charges.</li> <li>• An allocation based on beneficiary-pays is appropriate where beneficiaries can be identified, but not sure if we have the beneficiaries right for the HVDC.</li> <li>• It is not important to deal with transmission alternatives as we will not see large investments until 20s/30s, Transpower is initiating a demand-side market in UNI/USI, and the Commerce Commission is looking at changing the incentives on distributors.</li> <li>• Deep v shallow connection is a second order issue unless load ends up paying for the HVDC. However, deep connection only accounts for around \$25 million a year, and causes transaction and administrative costs as lines company's look for ways to avoid deep connection. John provided rough estimates of the breakdown of deep/shallow connection and other transmission asset costs.</li> <li>• There are perverse incentives for embedded</li> </ul>	<ul style="list-style-type: none"> <li>• Explore alternatives to the status quo for the HVDC charge.</li> <li>• Develop a pricing solution for static reactive support (although this a second order issue and could be better handled by a subgroup.)</li> </ul>

	<p>generation to avoid the HVDC charge.</p> <ul style="list-style-type: none"> <li>• Static reactive compensation is a second order issue, but it is very important for lines companies.</li> </ul>	
Bob Weir	<ul style="list-style-type: none"> <li>• Although the tilted postage stamp was attractive in theory, it has issues rather than benefits and complete shifts in pricing are not valuable: the fundamentals of the status quo are sound.</li> <li>• The value of the N-S signal provided by the HVDC charge is uncertain, but the beneficiary-pays principle has some validity and should not be discounted.</li> </ul>	<ul style="list-style-type: none"> <li>• Status quo is sound, but changes could be made to HVDC charge structure (HAMI) and who pays (are there other beneficiaries that should be paying?)</li> </ul>
Ray Deacon	<ul style="list-style-type: none"> <li>• The long-term benefit of customers is fundamental.</li> <li>• The fundamentals of transmission pricing should be based on beneficiary-pays.</li> <li>• The inability to identify every beneficiary of an investment is not sufficient to dismiss this approach to cost allocation. Free-riding is only a problem if the sum total of the free-riders ability to hold-out prevents welfare enhancing investments occurring. It is sufficient to allocate the costs of an investment to a subset of beneficiaries such that the benefits this subset receive from the investment exceed the costs that are allocated to them; and in aggregate the cost of the investment is recovered.</li> <li>• In an interconnected grid it may be hard to identify beneficiaries.</li> <li>• Deep connection should be applied where possible, and but-for approach should be considered for application.</li> <li>• There is no reason why different parts of the network should not be allocated under different methodologies, and why new investment and sunk costs should not be allocated differently.</li> </ul>	<ul style="list-style-type: none"> <li>• Postage stamp for interconnection.</li> <li>• Capacity rights for HVDC assets</li> <li>• But-for would be useful based on a Grid Investment Test where beneficiaries can be identified.</li> </ul>
Peter Calderwood	<ul style="list-style-type: none"> <li>• The statutory objective with its three limbs and for the long-term benefit of customers is fundamental.</li> <li>• Sorting out HVDC charging should be the priority.</li> <li>• The fundamental question is whether there is a disbenefit from the existing DC charging regime. To make a change we would need to look at the</li> </ul>	<p>The status quo for the HVDC charge is not an option – we need to consider alternatives.</p> <p>Other tweaks could be changes to RCPD and possible changes to the deep connection regime.</p>

	<p>Authority objective's three limbs:</p> <ul style="list-style-type: none"> <li>• Efficiency – the HVDC charge does not give the most economical investment.</li> <li>• Competition – the HVDC charges distorts investment competition.</li> <li>• Reliability – the HVDC charge lessens the peak supply available and discourages investment in SI peaking generation.</li> <li>• We need to make some assumptions: <ul style="list-style-type: none"> <li>• That the big sunk costs items are already committed.</li> <li>• That generation investment is not likely to impact investment in a new HVDC link.</li> </ul> </li> </ul>	
Bruce Girdwood	<ul style="list-style-type: none"> <li>• The outcome needs to be principled, enduring and in the best interests of consumers.</li> <li>• The regulated framework for transmission is changed from that when the TPM was originally developed by Transpower. We are no longer expecting merchant transmission investment for which understanding the beneficiary was important; we have a regulatory contract rather than a commercial contract.</li> <li>• The big \$s are in energy, with a smaller proportion of costs in transmission. Transmission pricing must not distort the energy market.</li> <li>• The TPM has stood the test of time, although we can tweak it.</li> <li>• Transpower's justification for charging SI generators was that the beneficiaries are SI generators and NI load. If you allocate the cost to NI load it will be passed on to customers, if you allocate to SI generators, it may not be passed on if you have a producer surplus. However, new investors may not have a producer surplus.</li> <li>• We need an efficiency gain for the long term benefit of consumers to justify any value transfers.</li> <li>• Transpower's revenue requirement is changing whereas it had been stable for a long time.</li> </ul>	<ul style="list-style-type: none"> <li>• There is no good argument to make step changes to status quo.</li> <li>• The HVDC charge must be reconsidered and resolved.</li> <li>• If there are some anomalies in other areas, we can take the opportunity to resolve these.</li> </ul>

David Reeve	<ul style="list-style-type: none"> <li>• There is no justification for additional locational signalling.</li> <li>• Generators are large well-resourced counterparties, so charging some portion of interconnection and HVDC could (appropriately) increase engagement around the grid investment process.</li> <li>• There is a chance identifying beneficiaries will never be resolved so the NZIER proposals (capacity rights and arbitrageur proposals) could be consider. These are expensive in the first instance but they may prove more enduring.</li> </ul>	<ul style="list-style-type: none"> <li>• Postage stamp for interconnection.</li> <li>• RCPD for load is appropriate especially to direct connects</li> <li>• If the HVDC cost were to be added to interconnection: <ul style="list-style-type: none"> <li>• it would involve large rate shock;</li> <li>• it could be shared between generators and load;</li> <li>• there should be no peak charging for generators.</li> </ul> </li> <li>• Deeper connection could be arranged through bilateral or multi-lateral approaches.</li> </ul>
Graham Scott	<ul style="list-style-type: none"> <li>• It is important to maintain the quality of process.</li> <li>• Any early changes we recommend to the HVDC charges should reflect a framework of thinking that we can apply to other issues we work on so that we can maintain a consistent approach to all our advice.</li> <li>• Balancing the need for consistency of approach against the longer term benefits of efficiency suggests that it is worth attending to the HVDC costs as a priority.</li> <li>• The basic economics suggest that a two-part tariff with a fixed overhead and a marginal cost is appropriate.</li> <li>• The NZIER approaches have their attractions in that they seek to get the market to show what the value of the assets is.</li> </ul>	No option given.
Glenn Sullivan	<p>Glenn was not present at the meeting, but provided a note which is summarised here.</p> <ul style="list-style-type: none"> <li>• Load-flow based allocation is the most technically accurate method of allocating transmission costs and should incentivise local investment in transmission alternatives where the grid is becoming constrained.</li> <li>• Other beneficiaries should be apportioned costs of the HVDC based on load-flow based analysis to provide more accurate cost allocation, but this</li> </ul>	<ul style="list-style-type: none"> <li>• Allocate connection assets under whichever is lowest transactional cost scenario (load-flow based or status quo).</li> <li>• Roll HVDC into interconnection assets (post some transitional period).</li> <li>• Split interconnection costs 50/50 between generators and consumers.</li> </ul>

	<p>would raise questions about why not for other bidirectional lines.</p> <ul style="list-style-type: none"> <li>• There is little point in treating the DC link as different from other interconnection assets.</li> </ul>	<ul style="list-style-type: none"> <li>• Allocate interconnection assets by some split of load-flow based and postage stamped.</li> <li>• Use kvar charges to recover costs associated with static compensation.</li> </ul>
John Culy	<p>Whilst John is not a member, the chair requested his view. John is providing advice to the secretariat.</p> <ul style="list-style-type: none"> <li>• A market-based approach (under which everyone contracts) is too hard.</li> <li>• It is important to allocate costs in a way that minimises the distortion for sunk costs.</li> <li>• We can accept the HVDC costs are sunk costs.</li> </ul>	<ul style="list-style-type: none"> <li>• Status quo with “a few tweaks” for example change RCPD to follow the need for investment.</li> <li>• Whether to change the HVDC allocation depends on whether the higher prices as a result of any distortion are bigger than the wealth transfer.</li> </ul>