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## TRUSTPOWER SUBMISSION: TPM REVIEW – LRMC CHARGES WORKING PAPER

### 1 Introduction and summary

- 1.1.1 Trustpower Limited (Trustpower) thanks the Electricity Authority (Authority) for publishing its *Transmission Pricing Methodology Review: LRMC charges* working paper<sup>1</sup> (the LRMC Charging Working Paper) and welcomes the opportunity to continue the dialogue on this important part of our costs to serve.
- 1.1.2 The triggers for this Working Paper were the submissions by ENA and Transpower on the Authority's TPM beneficiaries pay working paper<sup>2</sup> (the Beneficiaries Pay Working Paper), which highlighted the fact that LRMC charging would rank further up in the Authority's TPM decision-making and economic framework than the Authority's proposed SPD method, and therefore should be considered further by the Authority.
- 1.1.3 The purpose of the LRMC Charging Working Paper is to gauge stakeholders' views as to whether the Authority should do further work on a LRMC charging option or whether, having identified the issues with this approach at a conceptual level, this option can now be set aside.
- 1.1.4 This is a difficult question to answer in the abstract, as to some extent the issue turns on whether implementation of a particular form of LRMC charging for transmission would be more complicated than the implementation of a particular form of transmission charging using the SPD method. That in turn may depend on how pure a model is adopted in each case.
- 1.1.5 Trustpower also notes the LRMC Charging Working Paper suggests that an LRMC model is unlikely to fully recover Transpower's historic costs. The Authority proposes to apply its decision-making and economic framework to identify options to recover the shortfall. This implies that a vote for an LRMC charging model is in fact a vote for a LRMC + SPD + residual charge model.

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<sup>1</sup> LRMC Charging Working Paper available online at <http://www.ea.govt.nz/dmsdocument/18259>

<sup>2</sup> Beneficiaries Pay Working Paper available online at <http://www.ea.govt.nz/dmsdocument/17482>

## 1.2 Summary of our position

- 1.2.1 In our view, implementing neither an LRM model nor a beneficiaries-pay model would likely be of long-term benefit to consumers, in the context of a statutory requirement that Transpower is to receive full recovery of its regulated revenue requirements.
- 1.2.2 We think both an LRM model and a beneficiaries-pay model would be a very complex way for consumers to pay Transpower's costs of providing transmission services. A combination of the two (LRM + SPD), plus a residual charge, would be even more problematic.
- 1.2.3 Some of the issues we have identified in the LRM Charging Working Paper are discussed below. However we first consider the context in which these options need to be evaluated.
- 1.2.4 Fundamentally, our view is that the Authority is continuing to ask the wrong question. Instead of asking, "*How can we allocate transmission charges to ensure transmission investment is efficient?*", it should instead be asking, "*What is the most efficient way to allocate the charges which have been determined by another regulator as producing the efficient level of investment by the grid owner?*"

## 2 Context

- 2.1.1 The LRM Charging Working Paper notes that the core characteristics of transmission assets which influence the approach to transmission charging are the large proportion of fixed costs and the loop-flow effects associated with these assets.
- 2.1.2 The LRM Charging Working Paper further notes that the high fixed costs of grid capacity and expansion mean it is efficient to have only one party providing the services – a monopoly – and that in order to contain incentives on such a monopoly to set prices at inefficient levels, it is usual for its prices to be regulated.
- 2.1.3 Trustpower notes that regulation of transmission revenues was introduced in New Zealand to ensure that Transpower could recover its costs of investment, particularly the costs of grid upgrades, after a period of considerable revenue uncertainty. In other words, regulation was not just about restraining prices but also about ensuring there was sufficient regulatory and contractual stability for much-needed investment to occur.
- 2.1.4 Changes to the Commerce Act in 2008 provided for Transpower (alone) to be subject to an individual price quality path. The Commission had considerable flexibility as to the form of price control Transpower was subject to. It selected a form of control whereby prices are specified by a total revenue cap net of pass through and recoverable costs, as demand risk is largely outside Transpower's control and its costs are largely fixed.
- 2.1.5 The arrangements enable prices to be smoothed to avoid rate shocks to Transpower's customers, and also provide for a bespoke input methodology for the approval of Transpower's capital expenditure and the roll-forward of its regulated asset base in the light of that approved capex.
- 2.1.6 It follows that the function of the transmission charging regime administered by the Authority is **not** to ensure the transmission provider faces price signals as to when it should add capacity, based on consumers' willingness to pay. Instead, the function of the transmission charging regime is to find a methodology which efficiently recovers investment costs approved by another regulator.
- 2.1.7 The value of both the LRM and the SPD methodology need to be assessed in the light of this important context. We now comment on specific aspects of the LRM Charging Working Paper.

## 3 Purpose of LRM Charges

- 3.1.1 The LRM Charging Working Paper notes that:

*"All LRM charges are based on estimating changes in the future cost of a good or service that are expected to arise from permanent increments or decrements in current and future demand for a good or service. Hence, LRM charges are forward looking, and do not take into*

*account costs already incurred to produce and deliver the existing level of goods and services*<sup>3</sup>.

- 3.1.2 It also notes that LRM charges have been applied in the UK, and that the UK experience is potentially relevant as the rationale for their LRM charges is the promotion of efficient transmission investment.<sup>4</sup>
- 3.1.3 Trustpower notes that this is the function of Commerce Commission's Capital Expenditure Input Methodology for Transpower. The Authority's role is to administer the Code. Section 12.77 of the Code provides that:
- "the costs incurred by Transpower in relation to an approved investment are recoverable from Transpower from designated transmission customers on the basis of the transmission pricing methodology and must be paid by designated transmission customers accordingly."*
- 3.1.4 "Approved investments" comprise existing investments and investments that are permitted under an input methodology determined by the Commerce Commission under section 54S of the Commerce Act 1986.<sup>5</sup>
- 3.1.5 We believe the input methodology process achieves similar outcomes to long-term contracts in workably competitive markets.
- 3.1.6 The Commission is required to review its input methodologies every seven years, and can if necessary change its process for approving investments. For example, it might do this if it considered its input methodology was resulting in over- or under-investment by Transpower.
- 3.1.7 This suggests that the promotion of efficient transmission investment should not be the key focus of the Authority's TPM review.

#### **4 Interface between LRM charges and nodal pricing**

- 4.1.1 In contrast to the Authority's statement in para 8.11 of the LRM Charging Working Paper, in his report for Trustpower<sup>6</sup> Professor Bushnell did not suggest at all that *"nodal pricing provides price signals that reflect both the SRMC and LRM for transmission"*.
- 4.1.2 In fact, Professor Bushnell argued why pricing transmission to create appropriate incentives for investment is so problematic:
- "Because grid investments are lumpy and disruptive, prices alone don't provide the answer."*
- "... This kind of problem illustrates why market-driven investment for transmission, where the reward is collecting the value of congestion costs, is so problematic."*
- 4.1.3 The whole of section II.i of his report actually discussed how and why prices could *not* be used as a basis for transmission investment, implying that average costs are likely above marginal costs (at least as implied by shadow prices), and that transmission investment is a natural monopoly undertaking in most cases. This is why the principles of natural monopoly pricing, like Ramsey pricing, are a good fit for this environment.
- 4.1.4 As can be seen in extracts from his report below (with emphasis added), much of the discussion in his report around the adequacy of nodal pricing/local marginal pricing (LMP) was based around incentives for generation location decisions, and the impact of individual location decisions on transmission investment:
- "For any generation plant that lacks the ability to unilaterally alter the network investment plan, the expected local price provides the fundamental building block for investment decisions. The locational marginal prices will place a different value on energy at different*

<sup>3</sup> LRM Charging Working Paper, para 6.1

<sup>4</sup> Ibid para 7.10

<sup>5</sup> Section 1.1 (1) of the Electricity Industry Participation Code

<sup>6</sup> Professor Bushnell's report available online at <http://www.ea.govt.nz/dmsdocument/17782>

*locations, and the incentive to build generation at a particular location will therefore automatically internalize the expectation of future energy prices in that location. No further locational incentives would be necessary. In fact additional locational charges on top of the LMPs would reduce dynamic efficiency.*

*It is when the investment in generation is seen as causing costly investments in transmission that locational prices can be insufficient to provide the proper incentive to locate generation plants, or load. For instance, if a generator anticipates that there would be a reasonable chance of transmission expansion soon after its generation investment, this network investment could diminish or eliminate congestion costs between the generation plant site and the rest of the system. To the generator facing these ex-post low LMPs, its location may appear to have no higher costs than other locations, even though large sums may be needed for the transmission expansion that eliminated the congestion.*

*Importantly, for there to be an incentive problem creating the dynamic inefficiency, the transmission investment decision needs not only to come after the generation investment decision, it needs to be directly caused by the generation investment.*"

- 4.1.5 Professor Bushnell argued instead for a combination of LMP and a "credible central decision making authority" (such as the Commerce Commission, in New Zealand's case) determining whether transmission investments should go ahead, according to a long-term plan:

*"The dynamically efficient system relies upon the long-run plan that is well informed, not easily swayed by individual generation location decisions, and allocates costs in a way that minimizes any distortions to either investment or usage of the network."*

- 4.1.6 Therefore the issue of the adequacy of LMP in generation and load investment decision-making depends crucially on the problem that is trying to be solved. As we summarised in our submission to the Beneficiaries Pay Working Paper:

*"Best-practice transmission pricing approaches for markets which have already adopted efficient congestion pricing mechanisms in the form of LMP only require independent decision-making by a credible central authority, based around a long-run transmission plan and modelled forecasts of benefits."*

- 4.1.7 We now consider the issues identified by the Authority in relation to the design of a LRMC charge.

## **5 Design choices and implementation difficulties**

### **5.1 Practicability issues identified by the Authority also apply to beneficiaries pay**

- 5.1.1 We note the practicability issues identified by the Authority in Section 9 of the LRMC Charging Working Paper, and agree with them.

- 5.1.2 There are a number of similarities between the Authority's assessment of LRMC charging and our own (and a number of other submitters') assessment of beneficiaries-pay charging.

- 5.1.3 For example, as we have noted in previous submissions to the Authority on its TPM proposal, a beneficiaries-pay method requires choices to be made around:

- a) The definition of "beneficiary" to be used;
- b) The methodology used for calculating which parties are beneficiaries and what their benefits actually are (including balances between stability of the charge and efficiency of the price signal);
- c) Determining whether charges should be based on long- or short-run assessment of beneficiaries and benefits, and the inclusion of negative benefits in the assessment;
- d) The appropriate approach for forecasting benefits in the long-run (or assessing beneficiaries and benefits based on historic outcomes), and the length of the forecasting/historic assessment periods used;
- e) Whether beneficiaries-pay charges should apply at a nodal or zonal level and how they would be calculated;

- f) Whether adjustments should be made to beneficiaries-pay charges for the signals provided by nodal pricing; and
  - g) Determining which parties should be subject to beneficiaries-pay charges, and how those charges should be allocated to maximise the sustainability of the charge (given the sensitivity of the charge allocation to parameters such as the capping period and value of lost load, etc);
- 5.1.4 The list above corresponds very closely to the list of issues provided in Section 9.
- 5.1.5 In our view, therefore, beneficiaries pay methods also face “*practicability issues [that] are considerable and are therefore likely to require significant time to resolve*”, and that the charges themselves are not likely to be “*sufficiently robust to be sustainable*” (para 9.5).
- 5.1.6 Issues around practicability and sustainability have been some of the main reasons why successive regulators both in New Zealand and overseas have found that it is neither efficient nor practicable to implement beneficiaries-pay approaches for the core grid.
- 5.1.7 If however, the Authority believes that the challenges facing implementation of beneficiaries-pay charging are surmountable, which could result in a net benefit to consumers, we therefore see no reason why it should not investigate LRM charging further.

## 5.2 Continued pursuit of beneficiaries-pay charging methodology

- 5.2.1 As stated earlier in this submission, our belief is that implementing neither beneficiaries-pay nor LRM charging would lead to a long-term net benefit to consumers.
- 5.2.2 Both methods face very difficult design choices, the outcomes of which result in large wealth transfers between different classes of market participants.
- 5.2.3 Furthermore, we do not think these approaches are consistent with the statutory purpose of the transmission pricing methodology, which is to find an efficient way to recover the approved costs of Transpower’s transmission services.
- 5.2.4 If the Authority is to continue its pursuit of a beneficiaries-pay charging methodology, we would refer it to the extensive guidance on design philosophy and design choices we provided in our submission to the Beneficiaries Pay Working Paper<sup>7</sup>. A key component of that guidance is the need for the outcomes of the allocation assessment to mimic as closely as possible that which could be expected under a market-based transmission investment model.
- 5.2.5 In that submission, we suggested the Authority explore the use of an approach for recovering charges based on long-term forecasts of benefits and beneficiaries. This approach has been described as the “economic model” approach (by the Authority), or “GIT-based” approach by various submitters.
- 5.2.6 This approach essentially uses a model to simulate beneficiaries and benefits over a range of future scenarios. This ensures consistency between the model used to decide whether a long-lived transmission investment should be made (and who the beneficiaries would be expected to be), and the model used to calculate charges. It also ensures static efficiency is not compromised.
- 5.2.7 While such a model would also require difficult design choices to be made, and, critically, be based on assumptions around grid usage and demand forecasts, such choices do have to be made in assessments for new transmission investments. As we have advocated often in recent submissions, ensuring consistency between the approach used in transmission investment decision-making and in recovering the costs of those assets would be most likely to maximise dynamic efficiency.
- 5.2.8 We have yet to review the Authority’s recently-published working paper on the TPM Problem definition relating to interconnection and HVDC assets<sup>8</sup>. If weight has been placed on the issue of durability as it relates to the *fairness* of the charge allocation, then the economic model method described above could be adapted to recover charges based on short-term forecasts of benefits and beneficiaries (i.e. for the coming 12 months), rather than long-term.

<sup>7</sup> Submission available online at <http://www.ea.govt.nz/dmsdocument/17784>

<sup>8</sup> Working paper available online at <http://www.ea.govt.nz/dmsdocument/18474>

5.2.9 This would reduce the uncertainty surrounding the forecasts used in the allocation assessment. However, it would then also reduce the strength of the relationship between the investment decision and the cost allocation (as charges were no longer based on long-run benefits), thereby reducing dynamic efficiency – but not by as much as if the charges were based on a measure of observed benefits.

5.2.10 For any questions relating to the material in this submission, please contact me on 07 572 9888.

Regards,

A handwritten signature in blue ink, appearing to read "J. Tipping".

**JAMES TIPPING**  
**REGULATORY STRATEGY MANAGER**

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