Transmission Pricing Advisory Group

Draft impact of regulatory change on Review analysis to date

Version 1: For discussion and approval by TPAG

11 March 2011

Note: This paper has been prepared for discussion with TPAG. Content should not be interpreted as representing the views or policy of the Electricity Authority or of TPAG.

Contents

1 Context

1.1.1 The Electricity Authority (Authority) is undertaking a wide-ranging review of options for the allocation methodology for transmission costs (Review). The Review was commenced under the jurisdiction of the Electricity Commission (Commission) and the Electricity Act 1992 (1992 Act). The Review is now being conducted by the Authority under the Electricity Industry Act 2010 (2010 Act).

1.1.2 This paper has been prepared to address an action point arising at TPAG meeting of 24 February:

> 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.

1.1.3 The paper:

(a) describes the relevant features of the statutory framework as they were at the beginning of the Review and as they are now;

(b) discusses the key areas of similarity and difference between the two statutory frameworks with particular emphasis on the statutory objectives; and

(c) comments on the potential implications of the differences in the statutory frameworks in the context of the Review.

2 Relevant features of the statutory frameworks

2.1.1 The two relevant statutory frameworks broadly described as:

(a) Framework under the Electricity Act 1992 (1992 Act) and the Electricity Governance Rules 2003 (Rules); and

(b) Framework under the Electricity Act 2010 (2010 Act) and the Electricity Industry Participation Code 2010 (Code).

Framework under the Electricity Act 1992 and the Rules

2.1.2 The Review was commenced under the jurisdiction of the 1992 Act and Section IV of Part F of the Rules. Under these arrangements the Commission was the governing institution and its functions included determination of the transmission pricing methodology (TPM) and approval of grid investments. The 1992 Act set out a in some detail statutory objectives and outcomes for the Commission[1]. The Commission's objectives and outcomes were multi-faceted and at times difficult to reconcile. Of relevance here, one of the Commission's functions[2] was to give effect to the Electricity Governance Policy Statement (GPS)[3].

2.1.3 The Rules set out the process for developing a TPM and included pricing principles and guidance on how the principles were to be applied[4]. Under these arrangements any changes to the TPM would have resulted in a Rule change as the TPM was a schedule to the Rules.

2.1.4 The pricing principles are directed at promoting various aspects or dimensions of economic efficiency.

1 See Appendix A

2 See section 172O(j) Electricity Act 1992

3 At the time the Review was initiated the relevant GPS was dated May 2009

4 See Part F Section IV Rules 2 and 3 and see Appendix A

In brief the statutory framework required that the guidelines/preferred option be consistent with:

(a) the Commission's principal objectives and specific outcomes set out in section 172N of the 1992 Act;

(b) the relevant objectives and outcomes of the GPS; and

(c) the pricing principles and the application and interpretation provisions as set out in the Rules.

Transpower's proposed TPM was required to be consistent with[5]:

(a) any determination made under Part 4A and sections 70 to 74 of the Commerce Act 1986;

(b) the pricing principles and the application and interpretation provisions as set out in the Rules; and

(c) any guidelines published pursuant to the Rules.

Framework under the Electricity Act 2010 and the Electricity Industry Participation Code 2010

2.1.5 The 2010 Act and the Code took effect on 1 November 2010, replacing the relevant provisions of the 1992 Act and the Rules in their entirety. The Commission was disestablished, the Authority was established and the Authority became the governing institution for the Review. Not all of the Commission's functions were transferred to the Authority. Approval of grid investment is now a Commerce Commission function and is governed by Part 4 of the Commerce Act 1986.

2.1.6 The Review now comes under the jurisdiction of the 2010 Act and the Code. Under these arrangements any changes to the TPM would result in a Code change as the TPM is a schedule to the Code. The Authority has a single statutory objective: "*To promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers".*

2.1.7 The Authority has released a document ('Interpretation Statement') which sets out its interpretation of the statutory objective. A copy of this document is available at: http://www.ea.govt.nz/document/12803/download/about-us/documents-publications/foundation-documents/.

2.1.8 The Interpretation of the Authority's statutory objective clarifies how the Authority interprets its statutory objective, will assist the Board to make consistent decisions, and will assist staff and advisory groups to develop Code amendments and market facilitation measures for the Board's consideration.

2.1.9 To further support its decision making on Code amendments the Authority has developed a set of Code amendment principles. The Code amendment principles are intended to provide guidance to interested parties, and industry participants in particular, about:

(a) the potential scope of the Code with regard to achieving the Authority's statutory objective; and

(b) how the Authority and its advisory groups will consider Code amendment matters, particularly in cases where quantitative cost-benefit analysis yields inconclusive results.

2.1.10 Neither the Interpretation Statement or Code amendment principles are required by statute but they are "creatures of statute" to the extent that they are derived from the 2010 Act and now form an important part of the Authority's analytic framework and decision making processes.

[5] See Part F Section IV Rule 7.2

2.1.11 Section IV of Part F of the Rules was transferred to Part 12 in its entirety. Amendments were made only to the extent they were necessary to reflect changes to the statutory framework. The pricing principles are currently subject to a Code amendment proposal which may result in their removal from the Code.

In brief the revised statutory framework requires that the guidelines/preferred option must:

(a) be consistent with the Authority's principal objective set out in section 15 of the 2010 Act and elaborated on the Interpretation Statement;

(b) be consistent with the Code amendment principles;

(c) be consistent with the pricing principles set out in clause 12.79 and their application and interpretation set out in clause 12.80 of the Code;

(d) have regard to any statements of government policy concerning the electricity industry[6].

Transpower's proposed TPM is required to be consistent with[7]:

(a) any determination made under Part 4 of the Commerce Act 1986; and

(b) the pricing principles set out in clause 12.79 and their application and interpretation set out in clause 12.80; and

(c) any guidelines published under clause 12.83(b).

3 Comparison of the statutory objectives established by the 1992 Act and the 2010 Act

3.1.1 A comprehensive legal analysis of the two objective statements has not been undertaken but a number of observations can be made. These observations provide sufficient comfort for there not to be a need to undertake a detailed legal assessment.

(a) The Commission's principal objectives and specific outcomes covered a broad range of issues. In particular, the Commission was required to consider the impact of its proposals on efficiency, fairness, reliability and environmental sustainability. The 1992 Act required the Commission to seek to achieve a range of specific outcomes (e.g. minimise hydro spill, remove barriers to investment in renewables). By contrast, the Authority has a narrower statutory objective with a focus on competition, reliability and efficiency. It does not contain any specific references to fairness or environmental sustainability. The Authority's objective is framed at a high level and does not make reference to specific outcomes that the Authority must seek to achieve.

(b) The Authority interprets its objective to centre on efficiency considerations, given the overall requirement for it to act in a way that is "*for the long-term benefit of consumers*". The Commission also treated efficiency as its guiding principle and this can be confirmed through a review of decision documents published by the Commission over a range of issues[8].

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[6] See section 17, Electricity Industry Act 2010

[7] See 12.89 of the Code

[8] For instance see its final decision on the HVDC Guidelines (Explanatory paper – Commission's final decision HVDC transmission pricing methodology – March 2006) at: http://www.ea.govt.nz/document/5225/download/act-code-regs/ec-archive/rules-regs/rulebook-regs/guidelines/transmission-pricing/. In this document the Commission noted:

> *3.2.2 The relevant points from the Statement of Reasons that therefore underlie the Commission's consideration of the appropriate TPM guidelines in respect of the HVDC Link are as follows:*
> *(a) The core issue to be addressed is how to set grid charges in ways that recover grid costs as efficiently as possible, having regard to the practicality of alternative options.*

(c) Stages 1 and 2 of the Review were primarily focussed on efficiency considerations, with an evaluation of the wider regulatory framework to be addressed in stage 3 as noted in the Stage 2 consultation document (for instance see the discussion on HVDC options[9]). Given the changes in the regulatory framework that have taken place since the stage 2 paper was released this wider assessment will be different than that contemplated at the time. However the important point to note is that the analysis in the stages 1 and 2 would not be materially different with the revised statutory objective.

(d) The Authority's interpretation of "competition" has at its core, a focus on enabling efficient outcomes[10]. The repealed Section 172N of 1992 Act included a specific outcome, centred on competition, that the Commission had to seek to achieve (consistent with the principal objectives): "*barriers to competition in the electricity industry are minimised for the long-term benefit of end-users*" (section 172N(2)(c)).

(e) The Commission's analysis of the requirement to reduce barriers to competition (in its evaluation of proposals for the current TPM) was within the context of the TPM being an efficient allocation methodology. For example it noted that:

> Competition in generation and retail is facilitated through an efficient allocation of Transpower's required revenue, within the bounds of the other aspects of the regulatory framework.[11]

While mindful the above context for the TPM, the Commission did seek to promote competitive outcomes, by for instance, promoting a deeper definition of connection and a transparent prudent discount regime it sought to ensure there was competitive tension on the provision of transmission services.

(b) Rules 2.1 and 2.3 should be given more weight than rule 2.2 because the "user pays" approach is more consistent with promoting efficiency.
(c) Rule 2.2 should be given greater weight than rule 2.4. Although the "beneficiary pays" approach is not as efficiency-enhancing as the "user pays" approach, it nevertheless should bring larger efficiency gains than are achievable under a "sunk cost" approach. The "beneficiary pays" approach would also seem to achieve fairer outcomes than the "sunk cost" approach…

9 See the stage 2 consultation paper available at http://www.ea.govt.nz/document/9992/download/our-work/consultations/transmission/tpr-stage2options/ which notes

> *'The regulatory framework sets out the matters to be considered in reviewing the TPM, including the allocation of HVDC costs (section 2.3 of this paper). The analysis in this paper looks at one set of considerations in isolation – the efficiency or otherwise of the price signals for participants' operational and investment decisions. Stage 3 of the review (identification and evaluation of a preferred option) will include a more complete analysis of matters set out by the regulatory framework (see section 2.3). A matter that the Commission considers will be relevant is any potential wealth transfers that may have the effect of increasing retail electricity costs and reducing electricity consumption.'*

10 See para A30 of the Interpretation Statement:

> *"the Authority interprets the phrase promoting competition in the electricity industry for the long-term benefit of consumers to mean: Exercising its functions in ways that facilitate or encourage increased competition in the markets for electricity and electricity-related services, taking into account long-term opportunities and incentives for efficient entry, exit, investment and innovation in those markets.".*

11 Transmission pricing methodology - summary of submissions and provisional response paper for the purposes of consultation under rule 8 of section IV of part F of the Electricity Governance Rules 2003 - 11 April 2007.

(f) Both of the Commission's principal objectives specifically addressed efficiency and reliability. The Commission interpreted this as a requirement to achieve an efficient level of reliability, where marginal benefits of improved reliability equate to the marginal costs[12]. The grid reliability standards, for example, seek to provide a framework where the cost of outages can be evaluated against the cost of mitigation and the appropriate decision to proceed or not with the investment can be made.

(g) The Authority[13] has adopted a similar view[14].

> Reliable supply is efficient when the marginal benefit of increased security and reliability equals the marginal cost of achieving it.

(h) The relevance of the reliability limb with respect to decisions about transmission pricing is limited to:

(i) the extent which the TPM should provide regulatory certainty by providing stable and predictable signals. These signals promote investment and contribute to a more robust system; and

(ii) encouraging good governance of the transmission sector (including investment decisions) and contestability where efficient (e.g. prudent discount regime) both of which contribute to a more resilient system.

This was reflected in the discussion in the stage 2 consultation paper on the potential benefits of deferring reliability investments. The Authority's approach to reliability in the context of the Review is likely to be similar.

4 Implications of changes to the statutory objective in the context of the Review

4.1.1 The differences between the two sets of objectives raise questions about:

(a) whether the existing TPM (developed under the Commission) is consistent with the Authority's objective; and

(b) whether the alternative TPM options (developed under the Commission and now being taken forward by the Authority) are consistent with the Authority's objective.

4.1.2 To the extent that any points of tension arise between the objectives in the TPM context, they are likely to stem from either:

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12 See External Peer Review of Grid Reliability Standards in New Zealand - Summary Report Goran Strbac and Predrag Djapic – Imperial College http://www.ea.govt.nz/document/2439/download/industry/transmission/code-regulations/grid-reliability-standards/ In their critique of Grid Reliability Standards (GRS) for transmission assets, Strbac and Djapic noted: "*Conceptually, the GRS clearly provides an appropriate framework for quantifying costs and benefits of network reinforcement alternatives. Probabilistic standards quantify the economic benefit of reducing risk of interruptions due to investment and conceptually explicitly and accurately reflect the level of operational risk and provide a framework for network and non-network solutions comparison*."

13 See also para A47 of the Interpretation Statement: "*The Authority interprets promoting reliable supply to mean exercising its functions to encourage efficient reliable supply*".

14 Paragraph A38 of the Authority document *Interpretation of the Authority's statutory objective* - February 2011 http://www.ea.govt.nz/document/12803/download/about-us/documents-publications/foundation-documents/

(a) the requirement on the Commission to consider fairness and environmental sustainability and the efficient use of electricity as a part of its principal objectives (considerations that are absent from the Authority's objective); or

(b) the requirement on the Commission to seek to achieve one or more of the "specific outcomes" listed in 172N(2) of the Electricity Act 1992 (absent for the Authority); although the specific outcomes make reference to the long term benefit of consumers, desirability of efficient outcomes, competition and reliability. With respect to the HVDC guidelines decision, the requirement to seek to achieve, consistent with the principal objectives, sustained downward pressure on prices was a consideration.

4.1.3 As noted many of the specific outcomes required of the Commission relate to efficiency considerations and the remaining elements do not appear to have been major considerations for the analysis to date on the Review.

The existing TPM

4.1.4 Changes to the statutory framework are sufficiently significant that regardless of the current Review, the validity of the current TPM under the new framework would need to be considered at some point. This would involve a review of the TPM against the Authority's statutory objective and the application of the Code amendment principles, the first of which is lawfulness. It is not necessary at this time to definitively address the question of whether the current TPM conforms with the new statutory framework as this will by necessity be done as part of the Review as the Code amendment principles are applied to the transmission pricing alternatives including the existing TPM.

4.1.5 It is worth noting however that in reaching decisions on the existing TPM, efficiency was the most important factor.

Developing alternative TPM options

4.1.6 In developing alternative TPM options through stages 1 and 2 of the Review, efficiency concerns were the major driver for the Commission. For example, the Commission engaged Frontier Economics early in the process to prepare a paper on "Identification of High Level Options and Filtering Criteria". While this paper sets out the Commission's objectives, the discussion is framed exclusively in efficiency terms. This paper was an important foundation document in the development of alternative TPMs.

4.1.7 It is important to note that even if Parliament had given both organisations statutory objectives with a sole focus on efficiency, differences in analysis might still arise in developing a preferred TPM context. These differences could stem from:

(a) inherent uncertainties in some areas of analysis, such as estimating the size of locational signalling benefits. This can introduce a degree of subjective judgement; and

(b) the potential need to make trade-offs between different forms of efficiency. In particular, trade-offs might arise between shorter term static effects[15] and longer term dynamic effects[16]. In this context, it is useful to note that the Authority has stated that "in regard to long-term benefit, the

[15] For example recovering sunk costs with minimal distortion to *dispatch* decisions.

[16] For example avoiding distortions to generator *investment* decisions.

Authority considers that its primary focus is to promote dynamic efficiency in the electricity industry”[17].

4.1.8 Examining the alternative TPM options developed by the Commission (and now being taken forward by the Authority) it is worth noting that:

(a) The analysis of the “High Level Options” has focussed on the economic benefits of location-based transmission prices – this is an efficiency criterion.

(b) The analysis of options that could provide incentives to avoid/defer reliability investments has focussed on economic benefits of transmission prices - this is an efficiency criterion.

(c) The analysis of options that might alter the mechanism for allocating HVDC charges to SI generators has focussed on competition for new investment - this is an efficiency criterion.

(d) The analysis of options that might alter the pricing for Static Reactive Compensation has focussed on lowering the cost of providing SRC - this is an efficiency criterion.

4.1.9 Taking all of the above into account it can be concluded that the Review analysis to date has had as its principal focus “efficiency”. This is consistent with the statutory objectives under both the 1992 and 2010 Acts.

5 Comparison of the Rules/Code framework established by the 1992 Act and the 2010 Act

5.1.1 Section IV of Part F of the Rules was transferred to Part 12 in its entirety. As noted above however there is a Code amendment proposal which seeks to remove the pricing principles from the Code. In the event that the pricing principles are removed or amended this will result in a change to the analytic framework. Note however that Frontier Economics commented[18] in its report that the pricing principles “*Appear to be directed at promoting various aspects or dimensions of economic efficiency*.” The objectives of the Code amendment proposal are to:

(a) Simplify the decision framework for developing and evaluation the guidelines and the TPM.

(b) Reduce transaction costs for the Authority and interested parties in formulating the guidelines and the TPM.

(c) Remove superfluous regulation and simplify the Code.

(d) Recognise and reflect the Authority’s narrower statutory objective.

5.1.2 The Code amendment proposal arose out of feedback from industry participants that a review of the pricing principles was warranted because there was a clearly identified efficiency gain from amending the pricing principles and/or regulatory failure from their internal inconsistency and difficulties with respect to their application. Further that the withdrawal of the GPS and the new statutory objective for the Authority were sufficiently material to warrant a review.

5.1.3 The intention of the proposal to remove the pricing principles is not to create a new set of evaluation criteria but to provide greater clarity for developing the guidelines and the TPM. If the proposal is

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[17] Paragraph A12, “Interpretation of the Authority's statutory objective”, *Electricity Authority,* February 2011.

[18] Section 2.1 of Frontier Economics paper - *Theory of efficient pricing of electricity transmission services* - July 2009 http://www.ea.govt.nz/document/6613/download/our-work/programmes/priority-projects/transmission-pricing-review/

accepted the guidelines and the TPM will be assessed against the statutory objective and the Code amendment principles. As discussed above the Authority's interpretation of its statutory objective and the Code amendment principles as they apply to the TPM are consistent with the analytic framework created by the 1992 Act for the purposes of the Review.

5.1.4 The removal of the pricing principles (if it happens) would not invalidate the Review analysis undertaken to date.

6 Comparison of the institutional arrangements established by the 1992 and the 2010 Act

6.1.1 The relevant institutional arrangements for developing and determining the TPM are largely similar under both frameworks. The role of Advisory Groups introduced by the 2010 Act potentially provides industry participants with greater involvement in the design of Code amendments and market developments but does not alter the analytic framework in any way.

6.1.2 The transfer of the function of approving grid investments to the Commerce Commission is relevant to the development and determination of the TPM in that the TPM must be consistent with any determination made under Part 4 of the Commerce Act 1986 (Commerce Act). This includes the development of an input methodology for Transpower's capital expenditure proposals (Capex IM)[19]. The purpose of Part 4 differs from the objectives of the Commission and the Authority but there are many similarities. Competition, efficiency and the primacy of the long term benefits to consumers are important in all contexts.

6.1.3 The investment approval requirements in the Commerce Act are not dissimilar to that set out in the Section 3 of Part F of the Rules with the requirement that any Capex IM determined by the Commission must include:

(a) requirements that must be met by Transpower, including the scope and specificity of information required, the extent of independent verification and audit, and the extent of consultation and agreement with customers;

(b) the criteria the Commission will use to evaluate capex proposals; and

(c) time frames and processes for evaluating capex proposals, including what happens if the Commission does not comply with those time frames.

6.1.4 The Commerce Commission has commenced the process of developing a Capex IM with the publication of a discussion paper[20] and it plans to publish a paper on its draft Capex IM shortly. Current indications are that "*an investment test will continue to be a central part of assessing and approving Transpower's major capital expenditure*"[21]. It appears likely that the Capex IM will include a grid investment test based on similar principles to that of the current grid investment test developed by the Commission; including the concept of a net electricity market benefits test[22]. The transfer of authority to approve investments and the likely change in investment test does not invalidate the Review analysis undertaken to date.

[19] Section 54S Commerce Act..

[20] Capital Expenditure Input Methodology (Transpower), Discussion Paper, December 2010

[21] Ibid, X48

[22] Ibid X49 and X50

7 Recommendation

7.1.1 It is recommended that TPAG:

(a) supports the Authority's contention that changes to the statutory framework during the course of the transmission pricing review project do not require the Commission's analysis and development of alternative TPM by to be reworked. The stage 1 and 2 Review analysis and options developed by the Commission were primarily driven by efficiency outcomes which are consistent with the Authority's statutory objective; and

(b) note that consideration of whether the existing TPM complies with the new statutory framework is not required at this point in the process but that this question will be addressed when the Code amendment principles are applied.

Appendix A

A.1 The Commission's principal objectives and outcomes were set out in section 172N of the 1992 Act. It stated that:

(1) The principal objectives of the Commission in relation to electricity are—

(a) to ensure that electricity is produced and delivered to all classes of consumers in an efficient, fair, reliable, and environmentally sustainable manner; and

(b) to promote and facilitate the efficient use of electricity.

(2) Consistent with those principal objectives, the Commission must seek to achieve, in relation to electricity, the following specific outcomes:

(a) energy and other resources are used efficiently:

(b) risks (including price risks) relating to security of supply are properly and efficiently managed:

(c) barriers to competition in the electricity industry are minimised for the long-term benefit of end-users:

(d) incentives for investment in generation, transmission, lines, energy efficiency, and demand-side management are maintained or enhanced and do not discriminate between public and private investment:

(e) the full costs of producing and transporting each additional unit of electricity are signalled:

(f) delivered electricity costs and prices are subject to sustained downward pressure:

(g) the electricity sector contributes to achieving the Government's climate change objectives by minimising hydro spill, efficiently managing transmission and distribution losses and constraints, promoting demand-side management and energy efficiency, and removing barriers to investment in new generation technologies, renewables, and distributed generation.

A.2 The pricing principles contained in Rule 2 of Part F Section 4

2.1 the costs of connection and use of system should as far as possible be allocated on a user pays basis;

2.2 the pricing of new and replacement investments in the grid should provide beneficiaries with strong incentives to identify least cost investment options, including energy efficiency and demand management options;

2.3 pricing for new generation and load should provide clear locational signals;

2.4 sunk costs should be allocated in a way that minimises distortions to production/consumption and investment decisions made by grid users;

2.5 the overall pricing structure should include a variable element that reflects the marginal costs of supply in order to provide an incentive to minimise network constraints; and

2.6 transmission pricing for investment in the grid should recognise the linkages with other elements of market pricing (including the design of the financial transmission rights regime under section V, and any revenues from financial transmission rights).