

Decision-making and economic framework for transmission pricing methodology

Decisions and reasons

7 May 2012

Introduction

- 1 The Electricity Authority (Authority) is an independent Crown entity charged with promoting competition in, reliable supply by, and the efficient operation of the electricity industry for the long-term benefit of consumers (the statutory objective¹).
- 2 The transmission pricing methodology (TPM) determines how Transpower recovers the full economic costs of transmission services from designated transmission customers, ie generators and large industrials directly connected to the grid, and distribution networks. Transpower is responsible for developing the TPM according to the guidelines and process established by the Authority. The Authority is responsible for approving the TPM. The TPM is set out in schedule 12.4 of the Electricity Industry Participation Code 2010 (Code).
- 3 The revenue that Transpower may recover for supplying transmission services is approved by the Commerce Commission under Part 4 of the Commerce Act 1986.
- 4 The Authority is continuing the review of the TPM initiated by the former Electricity Commission. The Authority released the *Decision-making and economic framework for the transmission pricing methodology review* consultation paper² (TPM framework consultation paper) on 26 January 2012 to seek feedback on a proposed decision-making and economic framework for the TPM. The Authority received 18 submissions and 13 cross-submissions, which are available on the Authority's website³. Authority staff also met with 15 submitters who requested meetings to discuss and clarify their submissions.
- 5 This paper sets out the Authority's decision to adopt a decision-making and economic framework for the TPM, describes the framework, provides further explanation of how the Authority will apply the framework, and provides the Authority's response to the issues raised in submissions.

¹ Electricity Industry Act 2010, section 15.

² <http://www.ea.govt.nz/our-work/consultations/transmission/tpm-economic-framework/>

³ <http://www.ea.govt.nz/our-work/consultations/transmission/tpm-economic-framework/submissions/>

Authority decision on the decision-making and economic framework for the TPM

- 6 The Authority has decided to adopt:
- (a) a decision-making framework for the TPM that reflects the Authority's interpretation of its statutory objective. This interpretation puts a focus for making decisions about the TPM on promoting efficiency in the electricity industry for the long-term benefit of consumers; and
 - (b) an economic framework that establishes the Authority's preferred hierarchy of pricing approaches for the TPM. The economic framework supports the objective of promoting efficiency in the electricity industry for the long-term benefit of consumers. In order of preference, the hierarchy of pricing approaches consists of:
 - (i) market-based or market-like charges; then
 - (ii) exacerbaters pay; then
 - (iii) beneficiaries pay; and then
 - (iv) alternative charging options.
- 7 A graphical representation of the decision-making and economic framework is provided in Appendix A of this paper. The diagram illustrates the basis on which decisions will be made among the hierarchy of pricing approaches. It reflects the Authority's focus for making decisions about the TPM on promoting efficiency in the electricity industry for the long-term benefit of consumers.
- 8 The Authority considers that the framework provides a comprehensive and durable basis for making decisions that result in an efficient TPM. In particular, the Authority considers that the framework provides a sound and consistent basis for identifying the most efficient and practicable options for the TPM.
- 9 The Authority has made no changes to the framework proposed in the TPM framework consultation paper. Most submitters agreed in principle with the framework, but many raised issues about the application of the framework with some suggesting this implied the framework was unlikely to be practical. This paper provides further clarification about how the Authority will apply the framework.

Decision-making and economic framework for the TPM

- 10 The Authority has established a decision-making and economic framework to provide a comprehensive and durable basis for making decisions that result in an efficient TPM. In particular, the Authority wants to clearly set out how its interpretation of the statutory objective underpins decisions about the TPM and how the Authority will decide between the range of options for allocating the costs of transmission services.

Decision-making framework

- 11 The Authority is required to ensure the TPM is consistent with its statutory objective to promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers. Transpower, when developing the TPM, is also required to ensure that the TPM is consistent with the statutory objective.⁴
- 12 The Authority considers that the TPM should focus on overall efficiency of the electricity industry for the long-term benefit of electricity consumers. This reflects the Authority's interpretation of its statutory objective. It also recognises that efficiency, and reliability, in the electricity industry involves facilitating:
- (a) efficient investment in the electricity industry through providing incentives so that the right investments of the right amount occur at the right time, are in the right place and use the right technology. These investments can be in the transmission grid, generation (including distributed generation), distribution networks or by electricity consumers; and
 - (b) efficient operation of the transmission grid, generation (including distributed generation), distribution networks and demand-side management. This means providing incentives so that the day to day operation of transmission, generation, distribution and electricity demand-side infrastructure involves an efficient trade-off between reliability and cost.
- 13 The Code Amendment Principles⁵ (CAPs) provide guidance and structure about applying the statutory objective when considering amendments to the Code and how potential amendments to the Code should be assessed when quantitative cost-benefit analysis yields inconclusive results.
- 14 The decision-making framework and the CAPs are complementary – the decision-making framework provides additional guidance about how the statutory objective should inform the development and approval of the TPM. The Authority will continue to apply the CAPs when considering any amendment to the Code to amend the TPM.

Economic framework

- 15 The Authority's economic framework sets out a hierarchy of approaches that the Authority will use to identify and assess options for the TPM. The Authority will prefer options that involve in order of preference:
- (a) Market-based or market-like charges; then
 - (b) exacerbators pay; then
 - (c) beneficiaries pay; and then
 - (d) alternative charging options.

⁴ Electricity Industry Participation Code 2010, clause 12.79.

⁵ The Authority's Consultation Charter establishes the Code Amendment Principles (CAPs) which the Authority will adhere to when considering Code amendments. The Charter is available at: <http://www.ea.govt.nz/document/5133/download/about-us/documents-publications/foundation-documents/>

- 16 In applying the framework the Authority will seek to ensure that the resulting charges are efficient and practicable, and allow Transpower to recover the required revenue. The Authority recognises that there is a possibility that transmission costs may be recovered through a package of market-based, exacerbators pay, beneficiaries pay and alternative charging options.

Market-based or market-like charges

- 17 The Authority's first preference is for market-based approaches for determining charges. A market-based approach to charges would involve charges established by the interaction of buyers and sellers in a workably competitive market, or charges that are likely to mimic or replicate such charges (ie market-like). The Authority's preference is for charges that are established by the interaction of buyers and sellers rather than charges that seek to replicate the outcome of market interactions.
- 18 A market-based approach tends to be more efficient than other approaches because buyers and sellers, in a workably competitive market, can seek to achieve efficiency gains whenever and wherever possible. The main reasons a market-based option may not be the most efficient are because there is little competition, or implementation of the option may impose transaction costs greater than the efficiency gains.

Administrative approaches

- 19 An administrative approach to charging would be indicated when a market-based charge is inefficient. Under administrative approaches, the Authority's order of preference is:
- (a) exacerbators pay. An exacerbator is a party whose action or inaction led to a particular cost and who would change its behaviour to avoid or reduce the cost if faced with the social cost of its action or inaction;
 - (b) beneficiaries pay. A beneficiary is a party for whom the private benefits of the investment exceed its share of the costs and who would therefore be willing to pay for a portion of the investment if that were the only means of acquiring the benefit;
 - (c) alternative charging options, where the costs are socialised across the users of transmission services.
- 20 The Authority recognises that there may be situations where the same party will be an exacerbator and a beneficiary. In that case, an exacerbators pay charging approach would be applied, provided it was efficient.

Exacerbators pay

- 21 The Authority considers that the exacerbators pay approach will promote efficiency by making the party or parties whose actions or inactions lead to a particular transmission cost responsible for mitigating that cost. The charge that would apply to exacerbators would reflect the additional cost of augmenting the network, over and above any already planned investments, because of the exacerbator's or exacerbators' actions or inactions. As with other options, an exacerbators pay charge must be efficient for it to be applied.
- 22 The ability to identify exacerbators and the ability to set the charges at an appropriate level are key considerations for implementing exacerbators pay options. It may not always be possible, however, to identify approaches to these two methods that represent the ideal and that can be applied perfectly consistently. The Authority may therefore need to consider approaches that are broadly consistent but practicable. Ultimately, the Authority may need to exercise its judgement in deciding whether and to what extent to adopt the exacerbators pay approach.

Beneficiaries pay

- 23 The Authority considers that the beneficiaries pay approach will promote efficiency by requiring the party or parties for whom the private benefits of the investment exceed the costs to pay for that investment. Ideally, the price that would apply to beneficiaries should reflect the lesser of the charge which will fully recover the

costs of the grid being paid for by beneficiaries or the anticipated (*ex ante*) value to them from the services provided by the grid.

- 24 Determining the extent to which a party benefits from the grid will also require considering the costs of any alternatives available because a party's willingness to pay should not exceed the cost of its next best alternative.
- 25 The ability to identify beneficiaries and set the charges at an appropriate level are key considerations for implementing beneficiaries pay options. As for exacerbators pay approaches, it may not always be possible to identify and/or apply an ideal approach to these two issues and so a more practicable solution may be required. The Authority may therefore need to exercise its judgement in deciding whether and to what extent to adopt the beneficiaries pay approach. The Authority is cognisant that the benefits of improved investment efficiency and durability can be compromised if beneficiaries cannot be cost-effectively and clearly identified.

Alternative charging options

- 26 The Authority considers that an alternative charging option may need to be implemented when a market-based charging approach or charges based on exacerbators or beneficiaries is not efficient. An alternative charging option would need to:
- (a) limit the distortion in use of the grid resulting from the imposition of charges; and
 - (b) ensure the costs of providing the grid are fully recovered, so future investment in the grid is not inhibited by investors in the grid fearing they will not receive a return on and of their capital.
- 27 Possible alternative charging options that would meet these requirements include:
- (a) setting the charges so full recovery of costs will occur, but levying the charges on an 'incentive-free' basis, that is, on a basis unrelated to the current level of usage of the grid; and
 - (b) setting the charges so full recovery of costs will occur, but spread the charges evenly across as broad a base as possible, so the amount per unit is low, i.e. a postage-stamp approach. This should restrain the impact the charges have on usage and hence on the resulting allocative inefficiency.

Clarification of the decision-making and economic framework

- 28 The Authority has not made any changes to the framework proposed in the TPM framework consultation paper. Most submitters agreed in principle with the framework, but raised issues about the application of the framework. The Authority considers that concerns about the application do not negate the need for a principle-based decision-making and economic framework.
- 29 This paper also provides clarification about the Authority's intended approach to application of the framework, which may address submitters' concerns about the practical implications of the framework.
- 30 The main issues raised by submitters were:
- (a) the relationship between the framework and the Authority's obligations to follow good administrative decision-making processes (ie to act according to law, to follow a fair process and to not act unreasonably) and to apply the statutory objective and CAPs;
 - (b) the treatment of wealth transfers;
 - (c) the relative weight given to the static efficiency and dynamic efficiency effects of the TPM;
 - (d) how the framework will influence the approach to cost-benefit analysis of options;

- (e) the ranking of pricing approaches expressed in the hierarchy, particularly the preference for exacerbators pay over beneficiaries pay;
 - (f) the application of the framework in the broader regulatory and market context, including the interaction with the grid investment test administered by the Commerce Commission; and
 - (g) how the pricing approaches might work, or are described.
- 31 Other submitter issues, that are more concerned with the application of the framework and assessment of options, are listed at the end of the paper.

Decision-making framework

The Authority needs to follow administrative decision-making processes

- 32 One submitter commented that the Authority faces legal requirements beyond those set out in the Electricity Industry Act 2010. In particular, the submitter referred to the public law obligations of a decision-maker to act in accordance with the law, and not to make decisions that are arbitrary, unreasonable or inconsistent. Additionally, one submitter considers that the statutory objective and CAPs mean the Authority does not need a decision-making framework.
- 33 The Authority considers that its decision-making framework for the TPM is consistent with good administrative decision-making practices. Further, the Authority considers that the decision-making framework and the CAPs are complementary, with the framework providing an additional level of guidance about the Authority's expectations of how the statutory objective should inform the development and approval of the TPM.

Treatment of wealth transfers

- 34 Some submitters suggested that wealth transfers should be taken into account in some circumstances where the impacts of wealth transfers cause inefficiencies or outweigh efficiency gains. In addition, one submitter noted that focusing on overall economic efficiency may risk failing to take into account the impacts on different consumer groups.
- 35 The Authority's interpretation of its statutory objective takes a net-benefits approach to determining efficiency gains, but also accepts that efficiency effects arising from wealth transfers should be considered.⁶ Further, the Authority has indicated that 'if wealth transfers seriously undermine confidence in the pricing process or in the electricity industry more generally, then that can inhibit efficient entry and investment decisions and these dynamic efficiency effects should be taken into account when evaluating proposals.'⁷ This may be relevant to decisions about transmission pricing.

Relative weight given to static and dynamic efficiency effects

- 36 There were different views among submitters on whether the focus of the Authority's decision-making about the TPM should be on static or dynamic efficiency. A particular comment was that, because a substantial transmission investment programme has received regulatory approval in recent years, there will be significantly less transmission investment for the next 10 to 15 years or longer. The contention is that there are few dynamic efficiency gains to be made from amending the TPM to introduce arrangements that signal future investment in transmission.
- 37 Some submitters have strong concerns about retrospective (or ex-post) application of market-based, exacerbators pay and beneficiaries pay approaches, as imposing the costs of existing assets on different

⁶ Electricity Authority, Interpretation of Statutory Objective, paragraph A25. Available at: <http://www.ea.govt.nz/document/12803/download/about-us/documents-publications/foundation-documents/>

⁷ Ibid. paragraph 31(b).

parties would not facilitate the efficient use of transmission and would undermine investment in wider electricity industry assets (ie there would be no dynamic efficiency benefits). Some consider that there will be efficiency gains from a retrospective application of an approach through signalling the value of assets, or through enabling consistent approaches for both new and existing assets.

- 38 Other submitters noted possible problems with recovering the costs of existing or committed and new assets differently. These problems were practical or related to fairness concerns but also relate to concerns that consumers may ultimately 'pay twice' if new transmission assets were charged to generators with costs then reflected in wholesale prices, and existing assets charged directly to consumers.
- 39 The Authority will consider the extent of dynamic efficiency gains from price signals in relation to future investment when assessing the range of available options, and will undertake cost-benefit analysis to identify the potential static and dynamic efficiency gains of options. The relative weight given to static and dynamic efficiency effects will be considered in the cost-benefit analysis when conflicting efficiency objectives can be weighed against one another. The Authority will consider all the implications of decisions on the TPM for both committed and future investments and will make decisions based on the consideration of costs and benefits (incorporating consideration of both dynamic and static efficiency effects).
- 40 The Authority is aware that dynamic efficiency effects can be more difficult to quantify than static efficiency effects. For this reason the Authority will pay particular attention to ensuring it does not under-estimate dynamic efficiency effects when conducting cost-benefit analyses of alternative TPMs.

Economic framework

How does the framework fit with cost-benefit analysis

- 41 Some submitters noted that the hierarchy should not replace robust assessment and analysis. In meetings with submitters, a number of them sought clarification of how the cost-benefit assessment will be undertaken within the framework.
- 42 The framework does not depart from the good policy development practice required by section 39(2) of the Act. This means the Authority is bound to consider all practicable options for dealing with a problem, and will undertake the qualitative and quantitative analysis required to make an informed decision about the preferred option. Certain options may be discounted as a result of qualitative or quantitative assessments, but cost-benefit analysis will be conducted to decide between options and to identify the Authority's preferred option.
- 43 Section 39(2) of the Act specifies that cost benefit analysis of the Authority's preferred option is required if an amendment to the Code is necessary (which would be the case with a new TPM).

Hierarchy of approaches

- 44 Some submitters questioned whether exacerbators pay should be preferred to beneficiaries pay, and suggested there was no economic basis to differentiate the two approaches.
- 45 Exacerbators are not the same as causers. Exacerbators are parties whose actions (or inactions) result in costs or externalities that are not covered through their privately-met costs. An example of an exacerbator is a party whose equipment or behaviours contribute to a poor power factor at a particular location, where as a result Transpower is required to invest in network reactive support assets to correct the power factor. The party contributing to the poor power factor is an exacerbator. The Authority considers that efficient outcomes are more likely to result when exacerbators face the economic costs of their action (eg contributing to a poor power factor) or inaction (eg not investing in reactive support).
- 46 The Authority's reason for preferring exacerbators pay over beneficiaries pay is because, if applying exacerbators pay means avoiding exacerbating activities, this would avoid costs that would be incurred

under the status quo, implying an efficiency gain. This is not the case with beneficiaries pay. For example, there would be beneficiaries of an investment in reactive support equipment at a particular location, including the exacerbator.

- 47 In addition, some submitters considered that the hierarchy may not be a strict hierarchy as practically there are overlaps in approaches, and beneficiaries may also be exacerbators. The Authority recognises that the framework may mean that costs are recovered using a package of market-based, exacerbators pay, beneficiaries pay and alternative charging options, with each approach recovering a proportion of the total costs of transmission services up to the point that this is efficient.

Regulatory and market context

- 48 Some submitters recommend that the Authority consider and recognise the regulatory and market context for the framework including:
- (a) the wider Commerce Commission regulatory framework including the regulation of Transpower's allowable revenues under the Commerce Act and the investment test set out in Transpower's Capital Expenditure Input Methodology;
 - (b) which parties have decision rights;
 - (c) the design and operation of the market, particularly nodal pricing; and
 - (d) Transpower's incentives and the regulatory arrangements it is subject to.
- 49 The Authority will set out in more detail the wider regulatory and market context in the next consultation paper, as this is relevant to the application of the framework and assessment of options. The Authority notes that changes to aspects of the TPM are subject to the scope of the Act and Code. However, the Authority can carry out and make publicly available reviews, studies, and inquiries into any matter relating to the electricity industry under section 16(1)(g) of the Act.

Practical implications of the pricing approach

- 50 Submitters made extensive comments about the practicalities of the approaches established by the hierarchy and commented about the costs and benefits of specific options. These will be considered through the application of the framework and the assessment of options.
- 51 Some submitters questioned whether the current connection contracts can correctly be viewed as market-based approaches. The Authority recognises that these contracts are based on a regulated contract. They do, however, reflect the sort of long-term contract that participants might enter into if there were a market-based arrangement (ie they are market-like).
- 52 Submitters pointed to the potential for free-riding and hold-out under some approaches, particularly exacerbators pay and beneficiaries pay. However, for some submitters, there are measures that can be taken to resolve these issues such as the existing provisions addressing these matters in the Code and in the capital expenditure input methodology for Transpower. The potential for perverse incentives in the design and assessment of transmission pricing options will be considered through the option identification and assessment process.
- 53 Some submitters considered that there were errors in the example that indicated that transmission pricing decisions could result in a major industrial customer disconnecting from the grid. The Authority proposes to revisit the estimate and, if necessary, revise the calculation. The Authority notes that although the calculations could be reworked using different information and assumptions, it considers the potential for disconnection does exist in some circumstances. Such examples may provide relevant information for informing decisions about what prices are efficient and should apply.

Process for TPM review

- 54 A number of submitters commented on the Authority's proposed process for identifying a preferred option for the TPM. Some submitters considered that the Authority should undertake a further round of consultation so that industry participants can have input into identifying the short list of practicable options for amending the TPM. Several submitters also requested that the next stage of consultation include formal interaction between the Authority and submitters – either a workshop or hearing.
- 55 An additional round of consultation is not required by the process set out in the Code for developing the TPM, but could be incorporated. The Authority is not, at this stage, planning a further consultation round but, consistent with good policy development processes, will undertake consultation to obtain information necessary to make an informed decision. As such, an additional consultation stage is possible, particularly if the Authority's preferred options include complex design or implementation issues. Further consultation would result in a delay to completion of the TPM review and several submitters urged the Authority to complete the review expeditiously.

Issues more concerned with the application of the framework or assessment of the options

- 56 Submitters raised issues that the Authority considers are more appropriately considered in the design and assessment of transmission pricing options, including:
- (a) factors that affect efficiency such as perceptions of the legitimacy of the regime, uncertainty and the effectiveness of price signals;
 - (b) the ability for consumers to make reliability trade-offs and seek competition in transmission services;
 - (c) practical implementation issues for both market-based and administrative approaches;
 - (d) costs and benefits for different approaches;
 - (e) comments on particular options such as capacity rights or long term contracting;
 - (f) practical issues in identifying exacerbators or beneficiaries; and
 - (g) issues associated with levying charges on generators rather than load.

Appendix A Flowchart to describe the framework

57 The flowchart set out in Figure 1 outlines and summarises the Authority's decision-making process and economic framework. A more detailed diagram is available as figure 1 in the consultation paper.

Figure 1: Decision-making and economic framework for transmission pricing

