From the Electricity Networks Association

Comment on the Electricity Authority's Sunk Costs Working Paper

15 November 2013

The Electricity Networks Association makes this submission along with the explicit support of its members listed below.

Alpine Energy Ltd

Aurora Energy Ltd

Buller Electricity Ltd

Centralines Ltd

Counties Power Ltd

Eastland Network Ltd

Electra Ltd

E A Networks Ltd

Electricity Invercargill Ltd

Horizon Energy Distribution Ltd

Mainpower NZ Ltd

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Nelson Electricity Ltd

Network Tasman Ltd

Network Waitaki Ltd

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Powerco Ltd

Scanpower Ltd

The Lines Company Ltd

The Power Company Ltd

Top Energy Ltd

Unison Networks Ltd

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Waipa Networks Ltd

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Wellington Electricity Lines Ltd

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Executive Summary

1. The Electricity Networks Association (ENA) welcomes the opportunity to submit on the Electricity Authority's (Authority) *Transmission pricing methodology: Sunk Costs Working Paper* (Working Paper). The ENA appreciates the Authority's further consideration of comments regarding sunk costs made in submissions to the *Transmission Pricing Methodology (TPM) issues and proposal Consultation Paper* (2012). Unfortunately, it is not clear what implications the Authority intends to draw from the conclusions in this Working Paper for developing the TPM.

2. The Working Paper devotes considerable space to distinguish sunk costs from other fixed costs but then concludes (paragraph 1.10) "*The debate in the economics literature is about how best to recover fixed costs (and sunk costs are fixed costs), and not whether a distinction is required between sunk and other costs for efficient pricing.*" Given this conclusion, which we agree with, the reason for and implications of the focus in the Working Paper on distinguishing sunk costs from other fixed costs is not apparent.

3. The Working Paper commences with referring to comments from submitters in relation to the proposed SPD-based transmission charges and their assessment of this proposed charge, given that the costs that would be recovered by this charge are (in the view of the submitters) largely sunk. The concern raised by submitters was that the proposed SPD charge would bear little or no relationship with the marginal costs arising from the supply of the service, and therefore would not conform with the widely held view in regulatory economics that marginal prices should approximate marginal costs. This non-conformity raised by submitters applies if Transpower's costs are largely fixed, whether or not they are also sunk (and the Authority shares this view). Therefore, the debate in the Working Paper distinguishing sunk costs from other fixed costs does not appear to have any pricing policy implication.

4. If however the Authority considers in the future that the distinction of sunk costs relative to other fixed costs is relevant in some way to the development of the TPM, the definition of sunk costs that is used would be important, plus this distinction is ultimately an empirical issue and should be tested accordingly.

5. The TPM is being designed in the context of Transpower being a single supplier of the transmission service in (practically) all locations that it operates. From a regulatory economic perspective, any test as to whether assets are "sunk" or otherwise needs to be undertaken with respect to the regulated transmission service and to the location to which assets are committed. This distinction could be tested by assessing the value to Transpower, or to others, of transmission assets in an alternative use to transmission services, or at an alternative location, relative to their values used to derive Transpower's pricing under the TPM. If the values in alternative use or in alternative locations are close to zero, they are "sunk", as their use in providing the transmission service does not represent an opportunity cost to society. If these values are close to those used in the TPM pricing formula (on which Transpower is able to obtain a financial return), then their use in providing transmission services does represent an opportunity cost to society and the costs of such assets should be considered fixed, but not sunk.

6. There is no evidence in the Working Paper that the Authority has tested empirically whether or not Transpower's assets are largely sunk with respect to the supply of transmission services (e.g. there is no indication the Authority has sought Transpower's view on this matter or undertaken a case study of a sample of assets). It is important that, if the Authority in its development of the TPM places reliance on the sunk asset distinction, that it first tests this distinction empirically. The ENA expects the Authority would find that Transpower's assets are largely sunk with respect to the supply of electricity transmission services and to the location to which they are committed.

7. It is also not clear to the ENA why the Working Paper labours the distinction between marginal and infra-marginal prices. The ENA understands the proposed SPD charges would be marginal price signals from the perspective of injectors and off-take and their use of transmission capacity for each half hour. These proposed charges are not designed to be infra-marginal. Thus, the efficiency properties of these proposed charges need to be assessed with respect to marginal pricing criteria, not infra-marginal pricing criteria. The Working Paper unfortunately does not make a link between marginal pricing criteria, infra-marginal pricing criteria, and how best to assess the efficiency properties of the various pricing components of the proposed TPM, including the proposed SPD charges.

8. The Working Paper concludes (paragraph 1.13):

> *The importance of infra-marginal, as well as marginal decisions, means the total economic efficiency effects (static and dynamic) of a particular pricing proposal should be considered, and not just one aspect or one set of prices. A pricing methodology needs to be assessed on its merits.*

9. The ENA agrees with this statement and particularly with the last sentence. Unfortunately, the Working Paper neither provides such an assessment nor sets out criteria or principles to use for such an assessment. However, the Authority's own Pricing Principles that apply to electricity distribution pricing (listed in Appendix 1) do provide some useful principles for such an assessment. The Authority does not reference these Principles or use them in the Working Paper, even though the Authority uses them to assess the efficiency of the pricing methodologies of electricity distributors. These Pricing Principles have relevance to the topic of the Working Paper, as we illustrate below (with the notation matching those of the Pricing Principles, and our comments in brackets illustrating their relevance to the TPM):

> *(a) Prices are to signal the economic costs of service by (i) being subsidy free; (ii) having regard to the extent practicable the level of available capacity; and (iii) signalling to the extent practicable, the impact of additional usage on future investment costs.* (Marginal prices should approximate marginal costs of supply, which may be short or long term depending on capacity constraints).
>
> *(b) Where prices based on 'efficient' incremental costs would under-recover allowed revenues, the shortfall should be made up by setting prices in a manner that has regard to consumers' demand responsiveness, to the extent practicable.* (E.g. by the use of multi-part tariffs that include recovering costs through infra-marginal prices such as daily fixed charges, or by using some form of Ramsey pricing).

(d) Development of prices should be transparent, promote price stability and certainty for stakeholders, and changes to prices should have regard to the impact on stakeholders. (Stable transmission cost structures should enable stable transmission prices).

(e) Development of prices should have regard to the impact of transaction costs on retailers, consumers and other stakeholders and should be economically equivalent across retailers. (The proposed SPD charges would give rise to very high transactions costs).

10. The ENA recommends the Authority uses its Pricing Principles to assess the efficiency properties of its proposed TPM (including the design of the proposed SPD charges) and also of other possible approaches to transmission pricing.

1. Introduction

11. This submission from the ENA is in response to the Authority's Working Paper on sunk costs, and covers the following topics:[1]

- Section 2 comments on the context for this Working Paper.
- Section 3 comments on the discussion of sunk costs in the Working Paper.
- Section 4 comments on the discussion on marginal and infra-marginal prices in the Working Paper.
- Section 5 describes how the Authority's Pricing Principles could provide useful guidance in the development of the TPM.

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2. Context

13. The Authority's TPM proposal would recover transmission interconnection costs (inclusive of the HVDC costs) in four components.[2] One of the components would require the Scheduling Pricing and Dispatch (SPD) model to be used to (1) identify the beneficiaries of certain HVDC and interconnection investments and (2) estimate the extent of the private benefits they receive from those investments on a half-hourly basis (referred to as the SPD method). The Authority refers to this as a beneficiaries-pay charging approach. The approach would apply for assets of more than $2 million approved after 28 May 2004 and pole 2 of the HVDC link.[3]

14. The SPD method would be a new method for setting transmission charges in New Zealand and indeed we understand would be novel internationally. Many submitters commented on the design of this charge and in particular that the resulting level of this charge would not approximate the marginal costs to Transpower to supply the transmission service, and that it would also be volatile from one half hour to another. Submitters, including the ENA, expressed concern that the proposed design of this charge would not comply with the widely held view in regulatory economics that the level of marginal prices should, where feasible, approximate marginal costs. Many

1 Electricity Authority, *Transmission pricing methodology: Sunk costs working paper*, 8 October 2013.

2 These components are (1) the use of Loss and Constraint Excesses (2) the SPD-based charge (3) a Regional Coincident Peak Injection or Demand charge and (4) a prudent discount policy.

3 Electricity Authority 2012, *Transmission Pricing Methodology: issues and proposal Consultation Paper*, (Consultation Paper), 10 October 2012, p.69.

submitters expressed this concern in terms of such a charge being an inefficient way to recover "sunk" costs.

15. The Working Paper references some of these submissions (paragraphs 4.1 – 4.7), and emphasises the reference to "sunk" costs. This emphasis on sunk costs occupies the next ten pages of the Working Paper, with much of that discussion attempting to distinguish sunk costs from other forms of fixed costs. We comment on this discussion of sunk costs in section 3.

16. The Working Paper also examines the difference between marginal and infra-marginal prices. We comment on this discussion in section 4.

17. Lastly, the Authority has Pricing Principles that apply to electricity distribution businesses. The Authority makes no mention of these Principles. We discuss in section 5 how those Principles could provide useful guidance in the development of the TPM.

3. Sunk Costs

18. The lengthy discussion in the Working Paper on sunk costs does not appear to have any practical implications for the design of the TPM, as the Working Paper concludes (paragraph 1.10) *"The debate in the economics literature is about how best to recover fixed costs (and sunk costs are fixed costs), and not whether a distinction is required between sunk and other costs for efficient pricing.*"

19. The ENA agrees with the above conclusion. The ENA expressed its concerns with the proposed SPD-based method of charging in its response to the proposed TPM as follows:[4]

> *The SPD-based method would intentionally introduce into the wholesale market a price signal for using the transmission service. These price signals would be for the use of assets that have already been commissioned and for which there is no economic alternative use (i.e. they are sunk). Thus the proposed method would introduce price signals for market participants that change every ½ hour for the use of existing "sunk" transmission assets that have an economic life in excess of fifty years. These price signals would be both volatile and bear no relationship to the transmission costs that the ½ hourly bid decisions drive. We note nodal price variations already reflect the short-run marginal costs of the incremental use of transmission links.*

20. The above concern would apply equally to a situation where the costs of supply are considered to be fixed in nature but not also "sunk". It appears the Authority considers the cost to supply transmission services are largely fixed (paragraph 8.13), but not sunk when using a particular definition of the term "sunk costs" (paragraph 5.10). Thus, for the purposes of developing the TPM the distinction becomes academic between whether the costs to supply transmission services are fixed, or fixed and sunk.

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4 Electricity Networks Association, *Submission on Transmission Pricing Methodology Consultation Paper,* 22 February 2013, paragraph 51.

21. The ENA recognises that in other economic circumstances the distinction between sunk costs and fixed assets may be important. An example is in exit decisions of a firm from a market, where sunk assets have no opportunity cost to the firm and therefore need not feature in the decision making, compared with assets that have value in an alternative use and should feature in such decision-making. The Working Paper provides useful examples of some of these other circumstances (paragraphs 5.7 – 5.22). These other circumstances however do not apply to the design of the TPM.

22. If however the Authority considers in the future that the distinction of sunk costs relative to other fixed costs is relevant in some way to the Authority's development of the TPM, the definition of sunk costs that is used would be important, plus this distinction is ultimately an empirical issue and should be tested accordingly.

23. The Working Paper comes to the view that Transpower's assets are not sunk as the regulated business has value, for the following reason (paragraph 5.10):

> *There is undoubtedly an opportunity cost to the Crown in retaining its investment in Transpower. If it were to sell the firm to another party to use the assets in their current use, the Government would free up financial capital which could be applied to its other priorities. From the perspective of the owners of Transpower, and potential investors, the capital employed in the transmission grid cannot therefore be considered sunk. Whether an investor would get back the equivalent value of the amount invested will be determined by the regulatory environment and the market demand for the services provided by the assets.*

24. The above view simply reflects the financial outcome that under the existing TPM Transpower has the right to levy charges on customers, based (amongst other things) on the quantum of its regulated asset base, and that the rights to the residual cash-flows from those charges (held by the shareholders of the business) have value. This view provides no insight as to whether the assets in the regulated asset base are "sunk" or otherwise with respect to delivering the transmission service.

25. The TPM is being designed in the context where Transpower is the single supplier of the transmission service in (practically) all locations that it operates. From a regulatory economic perspective, any test as to whether assets are "sunk" or otherwise needs to be undertaken with respect to the regulated transmission service and to the location to which assets are committed. This distinction could be tested by assessing the value to Transpower, or to others, of transmission assets in an alternative use to transmission services, or at an alternative location, relative to their values used to derive Transpower's pricing under the TPM. If the values in alternative use or in alternative locations are close to zero, they are "sunk", as their use in providing the transmission service does not represent an opportunity cost to society. If these values are close to those used in the TPM pricing formula (on which Transpower is able to obtain a financial return), then their use in providing transmission services represents an opportunity cost to society and the costs of such assets should be considered fixed, but not sunk.

26. There is no evidence in the Working Paper that the Authority has tested empirically whether or not Transpower's assets are largely sunk with respect to the supply of transmission services (e.g. there is no indication the Authority has sought Transpower's view on this matter or undertaken a case study of a sample of assets). It is important that, if the Authority in its development of the TPM places reliance on the sunk asset

distinction, that it first tests this distinction empirically. The ENA expects the Authority would find that Transpower's assets are largely sunk with respect to the supply of electricity transmission services and to the location to which they are committed.

4. Marginal and Infra-marginal Pricing

27. As mentioned above, the Authority's proposed TPM includes four charging components, one of which is the SPD-based charge. The method to set this charge includes:

a) Identifying the beneficiaries of certain HVDC and interconnection investments; and

b) Estimating the extent of the private benefits they receive from those investments on a half-hourly basis. The Authority refers to this as a beneficiaries-pay charging approach. The approach would apply to assets of more than $2 million approved after 28 May 2004 and pole 2 of the HVDC link.[5]

28. The Authority states that the benefits of the proposed SPD method for implementing beneficiaries-pays charges include that:[6]

a) *it promotes efficient transmission investment through increased transparency of the benefit parties obtain from transmission assets, and by placing stronger incentives on parties identified as beneficiaries to participate in the investment decision-making and approval process;*

b) *it promotes efficient investment by generation and load, as allocating charges to beneficiaries means they will face the transmission cost implications of their investment decisions;*

c) *it promotes allocative efficiency through more efficient prices by reducing deadweight loss, as a greater proportion of the costs of transmission assets that are currently paid for under the interconnection charge would be paid for by beneficiaries. The reduction in deadweight loss would depend on the extent to which the charge reflects aggregate benefit.*

29. A regional coincident peak demand (RCPD) charge to load and regional coincident peak injection (RCPI) charge to generation parties would recover the residual balance of the costs of the HVDC and interconnection assets not recovered by other charges.

30. On this basis, we understand the proposed SPD charge would be levied on the level of transmission capacity used by market participants in each half hour. Thus, these charges are designed to be marginal prices and not infra-marginal prices. Therefore, the

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5 Electricity Authority 2012, *Transmission Pricing Methodology: issues and proposal Consultation Paper*, (Consultation Paper), 10 October 2012, p.69.

6 Electricity Authority 2012, *Transmission Pricing Methodology: issues and proposal Consultation Paper*, (Consultation Paper), 10 October 2012, para 5.6.55, p.102.

proposed SPD charge should be assessed against marginal cost principles rather than infra-marginal principles.

31. After explaining that the requirement for static efficiency is that the price for the marginal unit equates to marginal willingness to pay and marginal cost, the Authority surmises that "*economics does not provide the same definitive tests for pricing of infra-marginal decisions as it does for pricing marginal units".*[7] We do not see the connection of this comment to the consideration of the proposed SPD charge which is intended to signal marginal use. The Working Paper discussion surrounding marginal and infra-marginal pricing does not address the key concerns raised in submissions regarding the inefficiency of recovering large fixed costs in marginal prices (i.e. in the SPD charge).

32. The Authority also concludes that "*Economic theory does not support the claim in submissions that "there can be no dynamic efficiency benefits" from adjusting prices to incorporate the cost of sunk assets. Nor is there an economic efficiency reason to argue that recovering fixed costs through variable non-marginal prices would necessarily be allocatively inefficient.*"[8]

33. The ENA considers that infra-marginal pricing has most relevance in the context of the TPM to the design of multi-part tariffs (where the marginal price is separated from the fixed component). In the case of transmission pricing, the debate is largely around the recovery of fixed costs under a breakeven constraint and needs to focus on how best to recover fixed costs in a manner that minimises distortions to efficient use and investment.

34. There are well established principles that specifically address the pricing issues faced by utility businesses of having high fixed costs and low marginal costs (which we discuss in section 5). In our view, the Authority has not asked the right question in response to the issues raised in submissions. The more pertinent questions are "*What are the pricing implications of having large fixed costs in the supply of the transmission service?*" and "*What is the most efficient (or least distorting) way of recovering these large fixed costs?*" We discuss these issues in the next section in relation to pricing principles.

35. The Authority considers that the SPD charges in the proposed TPM would be efficiency enhancing *because* they are marginal price signals (not infra-marginal), so it is difficult to see how the infra-marginal discussion in the Working Paper contributes much to the discussion on the proposed SPD-charge component of the proposed TPM.

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7 Electricity Authority 2013, *Transmission pricing methodology: Sunk Costs Working Paper*, 8 October, paragraph 7.11, p.14.

8 Electricity Authority 2013, Transmission pricing methodology: Sunk Costs Working Paper, 8 October, paragraph 9.7, p.19.

5. Pricing Principles

36. In the Working Paper, the Authority comments that:[9]

> *The importance of infra-marginal, as well as marginal decisions, means the total economic efficiency effects (static and dynamic) of a particular pricing proposal should be considered, and not just one aspect or one set of prices. A pricing methodology needs to be assessed on its merits.*

37. The ENA agrees with this view and there is no question that the proposed TPM should be assessed on its merits. Unfortunately, the Working Paper neither provides such an assessment nor develops principles or criteria to use in such an assessment. The Authority does however have Pricing Principles (listed in Appendix 1) that it applies to electricity distribution services and which have relevance to the design of the TPM and to the issues raised in the Working Paper.

5.1 Authority's Pricing Principles

38. In 2010, the Authority's predecessor issued its Principles and Information Disclosure Guidelines (Pricing Principles and Guidelines). The Pricing Principles and Guidelines were designed to "*facilitate distributors developing more efficient and pro-competitive pricing structures, and making information available to stakeholders to assess whether distributors are doing so*".[10]

39. In 2012, the Authority commenced a review of distribution pricing and developed an economic framework that it intends to use as the basis for its decision-making. In the Consultation Paper[11] for the review, the Authority stated that:[12]

> *The Authority considers that the pricing principles are consistent with the decision-making framework as they have an economic efficiency focus and, in particular, seek to promote efficient use of distribution networks and efficient investment in the industry and by consumers.*

40. Thus the Authority has adopted these Pricing Principles as a basis for assessing the efficiency of electricity distribution pricing and indeed is currently reviewing distributors' pricing methodologies to determine the extent to which they are consistent with the Pricing Principles. It is not clear why the Authority does not also use these Principles to assess the efficiency of its proposed TPM. Distribution and transmission services both feature high fixed costs of supply and low marginal costs and so similar pricing issues arise (although we recognise there may be additional pricing issues that

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9 Electricity Authority 2013, Transmission pricing methodology: Sunk Costs Working Paper, 8 October, paragraph 1.13, pp 3-4.

10 Refer to Electricity Authority's website at http://www.ea.govt.nz/our-work/programmes/transmission-work/principles-or-model-approaches-to-distribution-pricing/#alignment.

11 Electricity Authority 2012, *Decision-making and economic framework for distribution pricing methodology review Consultation Paper, 7* May 2012.

12 Electricity Authority 2012, *Decision-making and economic framework for distribution pricing methodology review Consultation Paper, 7* May 2012, paragraph 27.

arise in transmission, for example in relation to locational signalling, that are less of an issue in distribution).

41. In relation to assessing the proposed SPD charge, the most relevant Pricing Principles are:

> *(a) Prices are to signal the economic costs of service by (i) being subsidy free; (ii) having regard to the extent practicable the level of available capacity; and (iii) signalling to the extent practicable, the impact of additional usage on future investment costs.*
>
> *(b) Where prices based on 'efficient' incremental costs would under-recover allowed revenues, the shortfall should be made up by setting prices in a manner that has regard to consumers' demand responsiveness.*

42. Principle (a) implies that price signals for capacity should broadly reflect the marginal costs of providing that capacity, which may be measured in terms of the short-term (where there is over-capacity), or over the longer term (where capacity constraints are emerging).

43. Principle (b) aims to guide the manner in which fixed costs are recovered. This could be achieved, for example, by multi-part tariffs where fixed costs are recovered in charges other than those applying to marginal usage (i.e. infra-marginal charges)[13], and/or by using so-called Ramsey pricing, which holds that fixed costs should be allocated to consumers in an inverse proportion to their price elasticity of demand. These pricing approaches aim, for economic efficiency reasons, to recover fixed costs in a manner that least influences consumption patterns.

44. The proposed SPD method would not result in prices consistent with Principle (a), as these charges would approximate the marginal costs of supply only by chance. The proposed SPD method may be consistent with Principle (b), if this method provided a reliable approximation of market participants' willingness to pay. The ENA considers it would useful for the Authority to assess its proposed TPM, and possible alternatives, using these Pricing Principles.

45. Another relevant Principle is:

> *(d) Development of prices should be transparent, promote price stability and certainty for stakeholders, and changes to prices should have regard to the impact on stakeholders.*

46. Economic theory and regulatory practice argue, for economic efficiency reasons, to align as far as practical pricing structures with the cost structure of a regulated supplier. Stable transmission cost structures should enable stable transmission prices. In contrast, the proposed SPD charge would create a profile of transmission charges that are variable over time and potentially volatile. This variability and volatility in the pricing profile is at odds with the underlying stable and fixed costs of providing the transmission service.

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[13] For a discussion about multi-tariff pricing, refer to Coase R H 1946, *The Marginal Cost Controversy*, Economica New Series. Vol. 13, No.51 (August 1946), pp. 169-182.

47. A further relevant Principle is:

> *(e) Development of prices should have regard to the impact of transaction costs on retailers, consumers and other stakeholders and should be economically equivalent across retailers.*

48. The proposed SPD charges would give rise to very high transactions costs.

49. The Authority has embarked on a review of the TPM without reference to either its own Pricing Principles or to a similar set of pricing principles. The ENA recommends the Authority assesses its proposed TPM, and possible alternative transmission pricing approaches, against its own Pricing Principles.

Appendix 1: Pricing Principles

Table 1 below sets out the Pricing Principles as they appear in the *Pricing Principles and Disclosure Guidelines from Distribution Pricing Principles and Information Disclosure Guidelines*, Electricity Commission, February 2010.

Table 1 Pricing Principles

Pricing Principles	
(a)	Prices are to signal the economic costs of service provision, by:
	(i) Being subsidy free (equal to or greater than incremental costs, and less than or equal to standalone costs), except where subsidies arise from compliance with legislation and/or other regulation;
	(ii) Having regard, to the extent practicable, to the level of available service capacity; and
	(iii) Signalling, to the extent practicable, the impact of additional usage on future investment costs.
(b)	Where prices based on 'efficient' incremental costs would under-recover allowed revenues, the shortfall should be made up by setting prices in a manner that has regard to consumers' demand responsiveness, to the extent practicable.
(c)	Provided that prices satisfy (a) above, prices should be responsive to the requirements and circumstances of stakeholders in order to:
	(i) Discourage uneconomic bypass;
	(ii) Allow for negotiation to better reflect the economic value of services and enable stakeholders to make price/quality trade-offs or non-standard arrangements for services; and
	(iii) Where network economics warrant, and to the extent practicable, encourage investment in transmission and distribution alternatives (e.g. distributed generation or demand response) and technology innovation.
(d)	Development of prices should be transparent, promote price stability and certainty for stakeholders, and changes to prices should have regard to the impact on stakeholders.
(e)	Development of prices should have regard to the impact of transaction costs on retailers, consumers and other stakeholders and should be economically equivalent across retailers.