From the Electricity Networks Association

Submission on Transmission Pricing Methodology: ACOT payments for distributed generation

29 January 2014

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

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Executive summary

1. The Electricity Networks Association (ENA) welcomes the opportunity to comment on the Electricity Authority's (Authority) ACOT paper.[1]

2. The ENA believes that the ACOT paper identifies the need for a review of the Schedule 6.4 distributed generation (DG) pricing principles, and may provide a basis for some modification to the transmission pricing methodology (TPM). For the avoidance of doubt, however, the ENA does not consider that DG pricing issues require or support changes to the TPM of the scale or nature of those reflected in the Authority's October 2012 TPM proposal.

3. The ACOT payment issues identified in this paper arose in the course of the Authority's consultation on proposed changes to the TPM. The ACOT paper finds fault with existing ACOT payments and implies that these faults suggest the changes to ACOT payments that would arise from the proposed TPM would improve efficiency. However, the identified faults do not in the most part arise from the ACOT payments themselves, but from other potential regulatory failures, for example:

   - To the extent that the transmission interconnection charge is based on a national average, and does not contain a locational signal or reflect the cost to serve a particular GXP or region, then the ACOT payments will also not send such signals. The current ACOT payments simply mirror the interconnection charge, so can only send the same pricing signal as that provided by the interconnection charge. To the extent that this is an issue that could be cost effectively and efficiently alleviated, it relates to the TPM rather than the use of ACOT payments themselves.
   - Grid-connected generation (that is not notionally embedded) does not receive a payment consistent with the payment to DG embedded in a distribution network. This does not necessarily imply that the payments to DG are inappropriate, but it can mean there is a bias in favour of embedding. To the extent that such a price signal is valid for grid-connected generation, the problem may lie with the absence of any method to identify and reward grid-connected generation where it is a genuine alternative to transmission.
   - The ACOT paper states that DG is not reflected in Transpower's demand forecasts. To the extent that this is an issue, it relates to Transpower's forecasting process, rather than the principle of providing a price signal to DG relating to its effects on the transmission system. We note, however, that Transpower does reflect the effects of DG in its load forecasts.
   - Overall consumers continue to pay the same for transmission (at least in the short term) plus ACOT payments. Again, this perceived outcome calls into question whether the existing (or proposed) TPM provides appropriate price signals to distributed generators and other operators, rather than being a problem that

[1] Electricity Authority, *Transmission Pricing Methodology: Avoided cost of transmission (ACOT) payments for distributed generation; Working paper,* 19 November 2013,

necessarily arises with ACOT payments. If the TPM provided the appropriate pricing signals for the incremental supply of transmission services, and the ACOT payments mirrored these signals, it should be desirable for DG and other operators to respond to those price signals.

4. The above points highlight the interdependencies between the TPM, distribution pricing methodologies, the regulation of distribution pricing and the Part 6 Code rules with respect to pricing DG connections. Coherent policy development demands these components be considered together. We also recognise that a TPM has objectives other than the delivery of appropriate price signals for the incremental supply of transmission (e.g. the TPM needs to ensure Transpower is able to recover its allowed costs). Nevertheless, any review of the pricing principles for DG connections needs to take into account all of these components, as otherwise it will be partial (as is the case in the ACOT paper) and not be capable of determining whether the overall effect of any proposed changes would be efficiency enhancing. Further, the pricing implications for DG need to be considered as part of the development of the TPM so as not to foreclose considering options for providing more efficient signals to DG.

5. The ENA considers that at a minimum the following issues should be addressed in any review of the pricing principles for DG connections (i.e. any review of Schedule 6.4 of Part 6 of the Code):

- The implications of a change in the objective of the regulation of DG connection pricing. Schedule 6.4 was developed with the objective of facilitating DG. The ACOT paper suggests the objective has now changed to ensure efficient price signals to DG. In this circumstance, the Authority should reconsider whether pricing principles separate from general distribution pricing methodologies are warranted for the pricing of DG connections.
- How best to signal to DG their impact on long-run marginal change to transmission and distribution costs. The fundamental problem that appears to sit behind the Authority's concerns about ACOT payments is that the current TPM does not signal the long run marginal cost of transmission. As a consequence, DG receives ACOT payments for avoided transmission charges without necessarily any commensurate transmission cost savings, in the short or long run. If marginal price signals to distributors arising from the TPM largely reflect a recovery of sunk transmission costs (as they currently do), rather than reflect the economic costs of adding additional transmission capacity at particular locations, then the Authority should consider removing the requirement on distributors in the DG pricing principles to pass on the transmission price signals to DG. If, however, the TPM provides price signals that do reflect the economic costs of adding additional transmission capacity at particular locations then this aspect of the ACOT payments required under the DG pricing principles would remain appropriate.
- The extent to which efficient price signals to DG are best delivered through regulatory means as opposed to market mechanisms, and ensuring that regulation does not foreclose the option of market-determined payments that would enhance efficiency (e.g. direct contracting of DG by Transpower or an ENB).
- The importance of long-term stability in price signals to DG, to provide confidence to DG investors to invest in efficiency enhancing DG. This needs to

include an orderly transition for existing DG, if any changes to the existing ACOT payments are implemented.

- Ensuring consistency in the treatment of DG and grid-connected generation with respect to signalling long-run incremental cost changes, where such generation is an alternative to transmission.
- Ensuring consistency in the price signals for transmission peak reduction, whether achieved by DG or load-shedding, so as not to unduly bias investment choices.
- The extent to which DG should be treated any differently to other electricity connections in terms of its contribution to the fixed and common costs of distribution and transmission networks.
- The potential for un-intended consequences of any policy change, for example creating incentives for DG to connect behind loads to achieve the same outcome of avoiding transmission costs.
- The transaction costs and practicality of implementing and maintaining any proposed changes. This should not be under-estimated, as any change to current ACOT payments will likely trigger the need for ENBs and DG operators to renegotiate numerous existing DG arrangements, and for ENBs to review and consult on their DG pricing and connection policies.

6. The ENA considers any such review would be best combined with the Authority's proposed review of distribution pricing methodologies (signalled to commence in mid-2014) as DG pricing principles are a subset of and need to be coherent with wider distributor pricing methodologies.

1. Introduction

7. The Electricity Networks Association (ENA) appreciates the opportunity to make a submission on the Electricity Authority's (Authority's) working paper "Transmission Pricing Methodology: Avoided cost of transmission (ACOT) payments for distributed generation" (ACOT paper).

8. The ENA represents the 29 electricity network businesses (ENBs) in New Zealand.

9. The Authority has released the ACOT paper in response to submissions it received on its Transmission Pricing Methodology (TPM) issues paper.[2] The Authority notes that some submitters expressed concern that the proposed TPM would reduce the ability of ENBs to make ACOT payments to distributed generators (DG) by altering the level of charges to ENBs for interconnection transmission charges.

10. In the ACOT paper, the Authority has focused on the extent to which ACOT payments provide benefits (including reducing distribution and transmission investment). The ENA considers a better focus would be to consider whether DG provides benefits (including reducing distribution and transmission investment), and whether the existing ACOT payments are a reasonable proxy for the extent of those benefits. Such an approach would be consistent with the Authority's objective to promote the efficiency of investment in DG, as the existing ACOT payments are an important aspect of DG business cases and, given existing and emerging technologies, DG is likely to provide an increasing share of total generation. Thus, the ENA considers the policy objective for any review of ACOT payments should be to determine whether there are more efficient ways to provide signals to DG investors as to the appropriate location, capacity and timing of DG investments. The ACOT paper does not address this policy objective.

11. In this submission:

- Section 2 discusses the nature of the problem raised in the ACOT paper.
- Section 3 describes the implications of the problem for TPM development and any possible review of distribution pricing methodology.
- Section 4 describes the implications of the problem for the Authority's proposed review of schedule 6.4.

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2 Electricity Authority, *Transmission Pricing Methodology: issues and proposal*, 10 October 2012.

2. The nature of the problem

13. Clause 2 and 2(a) of Schedule 6.4 of Electricity Industry Participation Code (the Code) read:

> *The pricing principles are as follows:*
>
> > *Charges to be based on recovery of reasonable costs incurred by distributor to connect the distributed generator and to comply with connection and operation standards within the network, and must include consideration of any identifiable avoided or avoidable costs.*
> >
> > *(a) subject to paragraph (i), connection charges in respect of distributed generation must not exceed the incremental costs of providing connection services to the distributed generation. To avoid doubt, incremental cost is net of transmission and distribution costs that an efficient market operation service provider would be able to avoid as a result of the connection of the distributed generation*:

14. Most ENBs interpret this pricing principle to mean they are obliged to pass on to a DG connection any avoided transmission costs that it gives rise to (even though an ENB is not included in the definition of "market operation service provider")[3]. They do so by making ACOT payments to DG based on an assessment of the costs they would avoid paying to Transpower due to DG during the periods that determine transmission charges. Some significant DG investments have been made since ACOT payments were initiated and DG investors have indicated that the profitability of these may be at risk if ACOT payments cease as a result of changes to the TPM.

15. The ACOT paper approaches ACOT payment policy from the perspective of addressing an issue raised by the proposed TPM, which was that DG would receive a lower payment under the proposed TPM for "avoided transmission costs". The ACOT paper considers whether existing ACOT payments are a good proxy for avoided transmission costs and identifies a number of perceived problems, and implies that changes to the current ACOT payments are likely to improve efficiency (but this is not tested). Part 6 of the Code relates to the connection of DG and is a direct replacement of the Distributed Generation Regulations (DGRs) that were administered by the Electricity Commission until 2010. The purpose of Part 6 and the DGRs is "*to enable connection of distributed generation where connection is consistent with connection and operation standards*" (clause 6.2 of Part 6). The 2003 discussion paper that relates to the

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[3] The Code definition of market operation service provider refers to s.5 of the Electricity Industry Act 2010 which states: "**market operation service provider** means the system operator and any person appointed by the Authority under the Code to perform any of the following market operation service provider roles:

(a) the registry manager:

(b) the reconciliation manager:

(c) the pricing manager:

(d) the clearing manager:

(e) the market administrator:

(f) the wholesale information trading system provider:

(g) any other role identified in regulations as a market operation service provider role."

development of the DGRs has a strong sense of promoting DG. The Minister of Energy at the time noted: "*I am very keen to encourage the development of distributed generation. One of the electricity outcomes the Government seeks is to facilitate the use of new technologies and renewable energy, and distributed generation.*"[4] The Government Policy Statement that applied when the DGRs came into force also provides some background:[5]

> *[Distributed generation] is expected to play an increasingly important role in meeting electricity demand as the cost of smaller-scale and new renewable technologies continues to decline. Distributed generation can improve security of supply by creating diversity of fuel types, locations and technologies, and, where appropriately sited, helps reduce the need for transmission and distribution upgrades. Accordingly, it is important that there are no unnecessary barriers to its development.*

16. Given this background, the focus of the DGRs and now Part 6 appears to have been to facilitate DG, rather than necessarily to provide efficient cost or price signals. The current Government's Energy Strategy indicates that the Government continues to have a focus on reducing barriers to DG, but it is not clear whether the earlier policy of facilitating DG (developed in 2003 and implemented through the DGRs) endures, for example the Energy Strategy states:

> *The Government will further consider its role in promoting new electricity industry development and in addressing market failures and system constraints on new technologies. The scope of this work includes: The future role of distributed generation and barriers to its deployment.*[6]

17. The tenor of the ACOT paper suggests that the objective for DG pricing may have shifted, but it is not explicit on this point. The ENA considers that an economic efficiency objective is appropriate for DG pricing policy as there is no reason to favour DG economically over other competing suppliers of energy or transport in the electricity system, or over other users of the transmission and distribution networks. Thus the key question for any review of ACOT payments should be whether the efficiency of price signals to DG relating to the externalities it imposes (costs or benefits) on the transmission and distribution system can be improved cost effectively. The issue at hand is to ensure long-term price signals are provided to DG such that the system evolves efficiently over time as increasing amounts of DG are contemplated and connected. This objective would be consistent with the ENA's understanding of the Government's Energy Strategy and the Authority's legislative objective.

18. Given this broader context, it becomes apparent that the issues raised in the ACOT paper need to be framed in the wider context of the electricity market. It may be that the ACOT payments based on current avoided transmission costs (as paid by

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4 Ministry of Economic Development, *Facilitating Distributed Generation: A discussion paper*, September 2003, p. i.

5 Government Policy Statement on Electricity Governance, October 2006. Downloaded from www.med.govt.nz/sectors-industries/energy/pdf-docs-library/electricity-market/electricity-industry/specific-legislation/revoked-gps/gps-no-markup-gps-on-electricity-governance-october-2006-v1.pdf

6 Ministry of Economic Development, *Developing our energy potential: NZ Energy Strategy 2011-2021*, August 2011, p.25.

distributors) are not efficient, but other potential regulatory failures also play a part, that is other forms of regulation may be promoting inefficiencies, for example:

- To the extent that the transmission interconnection charge is based on a national average, and does not contain a locational signal or reflect the cost to serve a particular GXP or region, then the ACOT payments will also not send such signals. The current ACOT payments simply mirror the interconnection charge, so can only send the same pricing signal as that provided by the interconnection charge. To the extent that this is an issue that could be cost effectively and efficiently alleviated, it relates to the TPM rather than the use of ACOT payments themselves.
- The fundamental problem that appears to sit behind the Authority's concerns about ACOT payments is that the TPM does not signal the long run marginal costs to supply transmission capacity. As a consequence, DG receives ACOT payments for avoided transmission charges without necessarily any commensurate transmission cost savings, in the short or long run.
- Grid-connected generation does not receive payments consistent with the ACOT payments to DG embedded in a distribution network (except where such generation is notionally embedded). This does not necessarily imply that the payments to DG are inappropriate. To the extent that such a price signal is valid for grid-connected generation, it is an issue with the system of identifying and rewarding grid-connected generation that is an alternative to transmission.
- The ACOT paper suggests that DG is not reflected in Transpower's demand forecasts. To the extent that this is an issue, it relates to Transpower's forecasting process, rather than the principle of providing a price signal to DG relating to its effects on the transmission system. However, the Authority's "*preliminary conclusion [that]…(b) ACOT payments have no observed effect on transmission investments [and] (c) although there appear to be some exceptions, ACOT payments have little observed effect on distributed investments or costs and ACOT payments appear to provide no other material benefits to distributors.*"[7] appears to be incorrect. Transpower's long-term demand forecast (one of its planning inputs) is based on "*demand at GXP level, net of embedded generation*", i.e. gross demand minus the output of embedded generation, and may be a positive or negative (if the GXP is injecting power into the grid) number.[8] ENBs' investment planning is based on network demand, which similarly considers local generation. The Authority's conclusion in the ACOT paper is also inconsistent with the TPM issues paper . In the analysis of the interconnection charge in Appendix D of the TPM issues paper, the Authority describes DG as having a favourable impact in terms of deferring investment needs.[9]
- Overall consumers continue to pay the same for transmission (at least in the short term) plus ACOT payments. Again, this perceived outcome calls into question whether the existing (or proposed) TPM provides appropriate price signals to DG

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7 Paragraph 1.15,

8 Transpower, *Long-term demand forecast – September 2011*, p.10,

9 Electricity Authority *Transmission Pricing Methodology: issues and proposal – Consultation Paper*, 10 October 2012, Appendix D. See for example, the table on p.D10.

and other operators, rather than being a problem that necessarily arises with ACOT payments. If the TPM provided the appropriate pricing signals for the incremental supply of transmission services, and the ACOT payments mirrored these signals, it should be desirable for DG and other operators to respond to those price signals.

- There may be other ramifications of moving away from the current ACOT payment approach, for example incentives may be created for DG to connect behind loads, so that the commercial advantages of ACOT payments can still be achieved.

19. The ACOT paper does not explore whether potential changes arising from the proposed changes to the TPM to existing ACOT payments would improve efficiency. Any review of DG pricing needs to include such an assessment.

20. Paragraph 10.3 of the ACOT paper states that there is a risk of ENBs giving preferential treatment to their own DG. The ENA strongly refutes any suggestion that this is the case. The Authority notes that there is no evidence of this occurring (even though ENBs are required to disclose information on DG)[10], so we do wonder why the Authority raises this point in the absence of any evidence. ENBs are often in a strong position to make well-informed investment in DG as they understand and have visibility over the electricity flows on their network. The ENA considers it an important principle that all DG is treated the same irrespective of ownership, as is the case now.

21. The ACOT payment is intended to be a proxy for savings to consumers in a region that result from the provision of generation within their own network area. The rationale is that those who are paying lower transmission costs because of DG should make a payment to the DG owner to reflect the benefit they receive. The ACOT paper does not disturb the underlying principle that DG should be rewarded for avoided costs resulting from their connection, but does raise questions about the best method of calculating that amount. The ENA suggests that the Authority should also consider whether the Code requirement that the DG owner enjoys the full benefit of the avoided costs in perpetuity is consistent with its statutory objective. As matters presently stand, other consumers can incur higher transmission charges (transmission plus avoided transmission) without any offsetting benefits (e.g. no sharing of the fixed and common costs of transmission and distribution).

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[10] Commerce Commission *Electricity Distribution Information Disclosure Determination 2012,* NZCC22, 1 October. Clause 2.4.1 contains the requirement that ENBs explain their approach to pricing distributed generation in accordance with clause 2.4.5 (3) which requires, *inter alia*, that the ENB disclose the "value, structure and rationale for any payments to the owner of the distributed generation".

3. Implications for TPM & distribution pricing reviews

22. The ENA agrees that a review of the pricing principles for DG connections (including ACOT payments) is warranted. It is important that any such review is undertaken within the context of the review of the TPM and any review of distribution pricing methodologies, as there are strong inter-linkages between these three issues. The Authority has recognised these linkages in its work programme,[11] but the status of the review of Schedule 6.4 as being dependent on the availability of resources overlooks the importance of these linkages.

23. The Authority states that it has not considered whether ACOT payments comply with Schedule 6.4 (although it assumes they do).[12] It also states that transitional arrangements are outside the scope of this paper.[13] The ENA considers that both of these matters are important considerations to a properly framed review of the pricing principles for DG connections.

24. Some of the issues identified in the ACOT paper were raised by ENBs in the consultation on the operational review of Part 6 of the Code. The Authority indicated in that review that it preferred to leave issues relating to Schedule 6.4 for a possible review of distribution pricing methodologies.[14] The results of the review of ENBs' pricing methodologies by Castalia were released in December 2013 and the Authority has indicated it will consult on its response in mid-2014. The ENA considers that any review of Schedule 6.4 should be combined with any review of distribution pricing methodologies, as the pricing of DG connections is a subset of an ENB's wider pricing methodology and DG pricing needs to be coherent with wider distribution pricing (e.g. the existing DG pricing principles require ENBs to charge non-DG connections 100% of their fixed and common costs, rather than spreading these costs amongst all users of their networks).

25. As part of any review of distribution pricing methodologies it would be desirable to consider whether separate pricing principles for DG are still warranted if the policy objective has shifted from facilitating DG to an economic efficiency objective. Such a shift in the policy objective raises, for example, the question of whether there is any continuing reason for DG to be treated differently to any other electricity connection as regards contributing to an ENB's fixed and common costs.

26. The ACOT paper shows that there is an important link between distribution pricing and the TPM. From a policy development perspective it is important to consider these

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11 Electricity Authority, *Work Programme 2013/14*, June 2013, p.23.

12 Paragraph 2.11.

13 Paragraph 1.22.

14 Electricity Authority *An Operational Review of Part 6 of the Code: Connection of Distributed Generation, Consultation Paper*, 4 September 2012, Table 6: Pre-consultation feedback considered to be outside the scope of this review, pp.109-112, item references 23-26.

links explicitly prior to finalising the TPM as otherwise possible options for distribution pricing methodology (such as using some form of ACOT payment to provide investment signals to DG that reflect its long-term impacts on transmission costs) may be foreclosed. The desired price signals for DG with regard to its effects on transmission costs, in the context of increasing prevalence of DG, need to be identified and practical options for implementing those signals developed as part of the development of the TPM. It is important for the efficient evolution of the system that this area of policy is not ignored or delayed until after the TPM review is completed.

27. Significant business investment decisions have been made on the basis of the existing DG ACOT payments continuing. Consideration should be given to an appropriate transition for existing DG receiving ACOT payments (to the extent that changes are to be made) such that the market for DG is not undermined.

4. Possible review of Schedule 6.4

28. The ENA agrees with the Authority's conclusion that Schedule 6.4 of the Code should be reviewed.

29. Any review should be wider than the matter of ACOT payments alone. The ENA has concern, for example, that DG is not required to contribute to distributors' fixed and common costs. We cannot see any economic basis for a class of consumer to not make contributions to these costs. Nor can we see how it could be to the long-term benefit of consumers for non-DG consumers to bear 100% of distributors' fixed and common costs when DG owners are clearly benefiting from the presence of and access to the network.

30. As indicated in the previous section, we consider that any review of Schedule 6.4 should be done as part of any review of distribution pricing methodologies and any such review should occur in conjunction with the TPM review.

31. The ACOT paper indicates some of the pricing principles in Schedule 6.4 may not result in efficient price signals to DG. Further, Schedule 6.4 lacks clear pricing principles and is poorly drafted. Some of the issues that should be addressed in any review of Schedule 6.4 include, but are not limited to:

- The implications of a change in the objective of regulation relating to price signals to DG. If the objective has shifted as we suggest above from facilitating DG to an economic efficiency objective, the Authority should reconsider whether pricing principles separate from general distribution pricing methodologies are warranted for the pricing of DG connections.
- How best to signal to DG operators the long-run incremental change in transmission and distribution costs as a result of DG.
- The extent to which such signals are best delivered through regulatory means as opposed to market mechanisms and ensuring that regulation does not foreclose the option of market determined payments that would enhance efficiency (e.g. direct contracting of DG by Transpower or an ENB).
- The importance of long-term stability in price signals to DG to provide confidence to DG investors to invest in efficiency enhancing DG. This needs to include an orderly transition for existing DG, if any changes to the existing ACOT payments are implemented.
- Ensuring consistency in the treatment of DG and grid-connected generation with respect to signalling long-run incremental cost changes.
- Ensuring consistency in the price signals for transmission peak reduction, whether achieved by DG or load-shedding, so as not to unduly bias investment choices.

Transpower has demand response trials underway nationally, and the Upper South Island has demand management in place that should feed into this.[15]

- The extent to which DG should be treated any differently to other connections in terms of its contribution to fixed and common costs of distribution and transmission networks.
- The potential for un-intended consequences of any policy change, for example creating incentives for DG to connect behind loads to achieve the same outcome of avoiding transmission costs.
- The transaction costs and practicality of implementing and maintaining any proposed changes. This should not be under-estimated, as any change to current ACOT payments will likely trigger the need for ENBs and DG operators to renegotiate numerous existing DG arrangements, and for ENBs to review and consult on their DG pricing and connection policies.

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15 See www.comcom.govt.nz/regulated-industries/electricity/electricity-transmission/transpower-major-capital-proposal/amending-the-outputs-of-transpowers-demand-response-initiatives-in-the-upper-north-island-/ for information about the national trial – this is an extension of the UNI Dynamic Reactive Support grid upgrade plan. A Transpower factsheet is also available, which includes a brief description of the Upper South Island initiative: www.transpower.co.nz/resources/upper-north-island-demand-side-initiatives-factsheet.