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Submission to the Electricity Authority

on

Transmission Pricing Methodology: Avoided cost of transmission (ACOT) payments for distribution generation

Made on behalf of 22 Electricity Distribution Businesses

PwC Submission on behalf of 22 EDBs

31 January 2014

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Glossary

ACOD	Avoided cost of distribution, being payments to DG by distributors in recognition of avoided distribution costs
ACOT	Avoided Cost of Transmission, being payments to DG by distributors in recognition of avoided transmission costs
Code	Electricity Industry Participation Code 2010
DG	Distributed Generation
EA	Electricity Authority
EDB	Electricity Distribution Business
ETS	Emissions Trading Scheme
GSC	Grid Support Contract
Grid	Transpower's national transmission grid
GXP	Grid Exit Point
NIC	New Investment Contract, between a distributor and Transpower for the supply of grid connection assets that are not deemed Connection assets.
Part 4	Regulation under Part 4 of the Commerce Act 1986
RCPD	Regional Coincident Peak Demand, basis for charging for interconnection under the current TPM
TPM	Transmission Pricing Methodology

Submission on Transmission Pricing Methodology: Avoided cost of transmission (ACOT) payments for distributed generation

1. This paper forms our submission on the Electricity Authority's (EA) Working Paper, "Transmission Pricing Methodology: Avoided cost of transmission (ACOT) payments for distributed generation" released on 19 November 2013 (the Working Paper). This submission has been prepared by PricewaterhouseCoopers (PwC) on behalf of the following 22 Electricity Distribution Businesses (EDBs or distributors):

    - Alpine Energy Limited
    - Aurora Energy Limited
    - Buller Electricity Limited
    - Counties Power Limited
    - Eastland Network Limited
    - Electra Limited
    - EA Networks Limited
    - Electricity Invercargill Limited
    - Horizon Energy Distribution Limited
    - MainPower New Zealand Limited
    - Marlborough Lines Limited
    - Nelson Electricity Limited
    - Network Tasman Limited
    - Network Waitaki Limited
    - Northpower Limited
    - OtagoNet Joint Venture
    - Scanpower Limited
    - The Lines Company Limited
    - The Power Company Limited
    - Top Energy Limited
    - Waipa Networks Limited
    - Westpower Limited.

2. These businesses together supply 36% of electricity consumers, maintain 48% of total distribution network length and service 74% of the total network supply area in New Zealand. They include both consumer owned and non consumer owned businesses, and urban and rural networks located in both the North and South Islands. In the year to March 2013 these distributors paid in excess of $165m in transmission charges and nearly half of the ACOT payments made by distributors to distributed generators (DG).

3. In response to feedback received on its 2012 Transmission Pricing Methodology (TPM) proposal[1], the EA is now consulting on the efficiency of current practices for determining ACOT payments for DG.

4. ACOT payments are regulated under schedule 6.4 of Part 6 of the Electricity Industry Participation Code (the Code). This sets out DG pricing principles. Distributors are only permitted to charge the incremental cost of connecting DG to the network, including consideration of net avoided transmission and distribution costs. Incremental cost is defined as reasonable costs an efficient market operation services provider incurs in connecting DG to the distribution network, less the costs that would be incurred if it did not provide the DG connection[2].

5. Distributors have developed approaches to determining DG connection costs and ACOT based on these regulations, which both recognise avoided transmission and distribution costs distributors. A common approach adopted across many distributors is to incorporate avoided Transpower interconnection charges into ACOT payments where DG reduces a distributor's Regional Coincident Peak Demand (RCPD) and therefore interconnection charges.

6. The Working Paper sets out the EA's views on the efficiency and appropriateness of ACOT payments. Its key findings are that[3]:

   - The majority of ACOT payments made are based on avoided Transpower charges. There appears to be little recognition of economic costs (ie reduced future operating or capital costs).
   - 100 per cent of the interconnection charge is typically included in ACOT payments meaning consumers do not share in any benefits that might arise from the connection of DG. The EA estimate the additional cost to consumers of ACOT payments, over and above Transpower charges, is $10 per consumer per annum.
   - ACOT payments provide a financial advantage to DG over grid based generation. This may result in uneconomic investments in generation.
   - Analysis of Transpower's asset planning documents suggests that DG:
     i. places additional costs on the transmission system
     ii. is unreliable as a transmission alternative under the n-1 security standard.
   - The connection of DG creates both benefits and costs for distributors, depending on the circumstances of the DG connection. However, the benefits are expected to increase as energy storage capability increases.
   - Other non-network related benefits (eg environmental, loss and constraints) appear to be at least partly compensated through the wholesale market mechanism, given these benefits are reflected in wholesale prices.

7. Based on these findings, the EA considers that an approach under which payments to DG are based on avoided economic costs, rather than avoided Transpower charges to the distributor, would better reflect the EA's statutory objective[4].

8. Set out below are our primary submission comments on the Working Paper.

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[1] EA, Transmission Pricing Methodology: issues and proposal, October 2012

[2] Clause 3 of schedule 6.4

[3] As summarised in section 12 of the Working Paper

[4] Working Paper, Para 1.16

Policy intent

9. Section 4 of the Working Paper discusses the policy background to Part 6 of the Code. This discussion highlights the Government's policy intent for Part 6, amongst other things, was to encourage investment in DG in recognition of security of supply and environmental benefits, cost savings brought about by reducing peak demand, and the contribution made towards lower prices.

10. However, the Working Paper appears to draw attention to the view that, in practice, DG does little to achieve these objectives as:

    - DG is not useful for promoting security of supply as it is generally not sufficiently reliable under n-1 security standards[5]
    - ACOT payments potentially duplicate environmental incentives already in place under the ETS[6]
    - Connection of DG may create benefits and costs for Transpower and distributors[7]
    - ACOT payments may lead to increases in prices to consumers (directly and through subsidies relative to potentially more efficient generation).

11. It is therefore unclear as to whether the EA still considers that positive price discrimination towards DG is an appropriate objective under schedule 6.4. Rather, the Working Paper suggests a move to more economically efficient DG pricing is preferred.

12. Accordingly, we question whether the EA needs to take a step back from its review of ACOT payments and first address whether the incremental cost pricing principles[8] under schedule 6.4 are necessary to fulfil the Government's policy objectives.

13. We note that the current requirements of schedule 6.4 appears to be inconsistent with the stated purpose of Part 6, which is to:

    "...enable connection of distributed generation if connection is consistent with connection and operation standards" - clause 6.2, Part 6

14. This purpose suggests that regulation should facilitate the DG connections process where connections are consistent with applicable standards; and indeed the majority of Part 6 deals with this connections process. However, Schedule 6.4 stands out as it does not appear to align with this primary purpose.

15. The policy background section of the Working Paper[9] also does not suggest that DG should receive favourable prices compared to other supply connections. There is reference to policy principles which suggest that an environment that encourages investment in small scale generation is desirable, but this does not go as far as to suggest that pricing should encourage investment in DG.

16. As discussed in the Working Paper, any review of schedule 6.4 will need to be assessed against the EA's new statutory objective under the Electricity Industry Act 2010 (EIA), which is to:

    "promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers." - section 15 of the Electricity Industry Act 2010 (EIA)

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[5] *ibid*, para 8.25

[6] Working Paper, Para 11.12-11.14

[7] *ibid*, section 8 and 9

[8] In schedule 6.4 of the Part 6

[9] Working paper, Section 4

17. Applying the lens of the new statutory objective to Part 6 suggests that the focus for DG regulations should be on promoting (where in the long-term benefit of consumers):

- *competition* in generation for DG and grid-based generators
- *reliable supply* of electricity facilitated through connection of DG where this is efficient
- *efficient operation* of the electricity sector, including efficient operation of transmission and distribution networks and wholesale markets, and including through efficient pricing.

18. We therefore support the EA reviewing schedule 6.4, but submit that the objective of this schedule needs to be first reviewed to align with Government's current policy intent for DG regulation.

Defining the problem

Background

19. The EA's preliminary view is that approaches under which payments to DG are based on avoided economic costs, rather than avoided Transpower charges to the distributor, would better reflect the EA's statutory objective.

Distributor perspective on ACOT

20. The Working Paper uses the term ACOT synonymously for avoided transmission costs and avoided distribution costs. Distributors need to consider both under Part 6 of the Code. For the purpose of this submission we define:

- ACOT as a payment from a distributor to DG in recognition of transmission charges that distributors avoid (ie avoided Transpower charges or other avoided transmission costs as defined under the Part 4 Input Methodologies).
- Avoided Cost of Distribution (ACOD) as payment to DG in recognition of net avoided distribution costs.

21. Distributors tend to focus on ACOT in their DG pricing methodologies, particularly in relation to avoided interconnection charges, as this is the largest and most tangible avoided cost. However, distributors are also open to considering payments in recognition of ACOD. These avoided costs are specific to individual DG connections so are not always emphasised in DG pricing methodologies. This is partly because connection of DG on different parts of the network can create either a benefit or cost depending on the type and location of the connection (as discussed in the Working Paper).

22. We therefore agree that avoided interconnection charges dominate distributor DG pricing methodologies. However, this is not to say that distributors do not consider other avoided costs where these can be demonstrated.

Are Transpower charges the problem?

23. ACOT and ACOD payments represent distributors own avoided costs. Transpower could also avoid costs as a result of the connection of DG, but these savings are not explicitly considered by the distributor in applying schedule 6.4, unless Transpower signals these cost savings in its charges.

24. We do not agree that ACOT payments should ignore Transpower charges as a general principle. Transpower charges are the cost that distributors face and the mechanism by which Transpower signals its economic costs. Thus incorporating avoided Transpower charges in ACOT payments should also signal avoided economic costs.

25. The issues raised in relation to incorporating Transpower charges into ACOT primarily relates to current practice in calculating avoided interconnection charges. Incorporation of other avoided Transpower charges, such as Connection or NIC charges, is unlikely to be controversial as these are

specific to each distributor and are calculated based on the economic costs of providing connection assets.

Issues with interconnection charges

26. As discussed in the Working Paper, Transpower's interconnection revenue requirement does not change due to changes in RCPD. However, it is possible for the allocation of interconnection charges across distributors to change within an RCPD region, and for an individual distributor to reduce its interconnection charges by connecting DG.

27. Payment of avoided interconnection is therefore rational behavior from an individual distributor's perspective, which would be completely consistent with the current 'with and without' test under the definition of incremental cost:

    "... the reasonable costs that an efficient market operation service provider would incur in providing electricity distribution services with connection services to the distributed generation, less the costs that the efficient market operation service provider would incur if it did not provide those connection" – clause" - clause 3 of schedule 6.4

28. In our view, distributors are currently calculating ACOT consistent with schedule 6.4. This representing the cost that they avoid with and without the connection of DG. Nevertheless, as the Working Paper suggests, consumers from a national perspective are worse off as the combined cost of transmission (including interconnection and ACOT) is greater after the payment of ACOT.

29. We believe this problem arises for a number of reasons:

    - Transpower interconnection revenue requirement is fixed regardless of changes in RCPD
    - Schedule 6.4 only focuses on the calculation of avoided costs accruing to an individual distributor, not the avoided interconnection costs of all distributors
    - Schedule 6.4 requires distributors to pay 100% of the avoided costs to DG, with no consideration of sharing the benefits with consumers over time.

30. The first of these reasons is unlikely to change as Transpower's annual revenue requirement is set by the Commerce Commission under its individual price path determined under Part 4, with the interconnection revenue requirement set with reference to this.

31. In the case of the second reason, as discussed above, we believe it is efficient that distributors only consider their own avoided costs (including any Transpower charges) when formulating ACOT payments. Distributors should not be required to consider Transpower own economic costs, apart from where these are signalled through Transpower's prices levied on distributors.

32. Finally, distributors are essentially required under Part 6 to pay DG the full avoided incremental costs meaning consumers cannot share in any savings arising from the connection of DG. This potentially exacerbates the issue identified by the EA.

Potential Solutions

33. The move to ACOT payments based on economic costs would potentially be economically efficient. However, as discussed above, we believe that consideration of Transpower charges should be limited to interconnection charges, which are the only Transpower charge that potentially does not align to avoided economic costs. One potential solution would be to:

    - remove consideration of avoided interconnection payments from schedule 6.4, and
    - require Transpower to signal or pay avoided interconnection directly.

34. Other avoided Transpower charges (Connection and NICs charges) and ACOD should remain in schedule 6.4 given they represent economic costs specific to the distributor.

35. Removing interconnection charges from schedule 6.4 would address the EA's concerns that consumers were being overcharged at a national level. However, it also removes any incentive on DG to reduce RCPD peaks, which overtime places upwards pressure on costs to augment grid assets relative to the status quo arrangements. At the very least, we would expect controllable DG (ie thermal or non run-of-the-river hydro) would no longer target its generation to RCPD peaks.

36. In the absence of any recognition of avoided interconnection payments, and in order to maintain incentives on DG, we believe Transpower charges would need to directly signal avoided interconnection costs arising from connection of DG. This could be facilitated either through interconnection charges levied on distributors (ie as a rebate) or directly with DG (ie similar to a Grid Support Contract (GSC)).

37. A rebate to the distributor is likely to have lower transaction costs as it avoids the need for Transpower to contract with the DG. Distributors could also bundle rebates with any payment in relation to ACOD or other ACOT payments.

38. While such an approach would address the key problem and focus ACOT payments on economic costs, we acknowledge from concerns raised in the Working Paper that this approach is likely to be difficult to apply in practice. For instance[10]:

- Transpower view local generation as being unreliable at an n-1 security of supply level, although potentially useful in managing system peaks at lower levels of reliability.
- Industry feedback raised concerns over the use of GSC in deferring transmission investments.
- Transpower did not consider intermittent generators (including wind and small scale run of the river hydro) as candidates for GSC.
- Many in the industry thought GSC would distort the wholesale market, the efficiency of which was viewed as paramount.

39. GSCs have also not been adopted for grid based generation, meaning there would be a further distortion between DG and grid-based generation introduced.

Managing transition

40. As discussed in our submission on the original TPM proposal, changing the basis for ACOT payments could fundamentally change the basis upon which these investments were made. The DG investment case has been supported by ACOT payments since their introduction in 2007 and many DG connection contracts now include provisions for the payment of ACOT. Furthermore, distributor decisions on whether to augment their own networks are in part influenced by the presence of DG on the network, underpinned by ACOT payments.

41. The Working Paper suggests that it is efficient to remove ACOT payments related to pass-through of interconnection charges. However, this may not promote static efficiency as some DG and distributor investments could be inefficiently stranded. Efficiency arguments have therefore not been tested as yet in the presence of stranding.

42. In order to provide regulatory certainty and to protect recent investments, we consider that the EA needs to consider either:

- transitioning any future new arrangements over time, or

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[10] Working paper, paragraph 8.20-8.28

- grandfathering existing contracts for ACOT payments under the existing schedule 6.4 Code requirements.

43. This transition is important to promote investment incentives in DG and distribution. It also recognises that changes to DG regulations are being considered only 6 years since their introduction and there is a need to promote regulatory certainty for investors in any review of regulations.

Proposed Review

44. We support a review of schedule 6.4 to address the issues discussed above. As discussed already, this review should:

    - address the purpose for DG pricing principles under schedule 6.4. Specifically, whether there is a need to promote investment in DG through favourable distribution pricing.
    - analyse the effect of removing ACOT payments on long run transmission demand (ie RCPD) and distribution, transmission and DG investments.
    - address whether a separate DG pricing principle is necessary or whether DG pricing could be captured under the wider distribution pricing principles. This approach will set DG pricing in the context of a set of more economically efficient pricing principles, putting these connections on par with supply connections[11].
    - assess the options to price avoided interconnection charges based on Transpower's economic costs.
    - consider transitionary arrangements for existing arrangements, as discussed above.

45. Our preference would be to incorporate this review into the wider review of distribution pricing expected to be released in July 2014 and concurrent with further consultations on a revised TPM.

Distributor owned DG

46. Section 10 of the Working Paper claims that distributors that own DG have the potential to show preferential treatment to their own DG when formulating ACOT payment. No evidence is provided in the Working Paper that this is happening.

47. We note that the EA view this as a risk. However, we believe there are already adequate safeguards in place to mitigate the risk of any preferential treatment to distributor owned DG. In particular, we note that:

    - Clause 6.11 of Part 6 requires a distributor to use the same reasonable efforts in processing and considering applications for the connection of DG and in connecting DG regardless of whether the DG has a direct or indirect ownership interest in DG connected to its network.
    - For distributors that own large scale generation (greater than 50MWs), section 76 of the Electricity Industry Act 2010 requires operational separation and arm's length rules between the distributor and DG business units. Any further arm's length requirements placed on distributor owned generation would effectively go beyond the intent of this legislation.
    - Section 2.4 of the Electricity Services Information Disclosure Determination 2012 (IDD) provided transparency over distributor arrangements as distributors must:

[11] Under the EA's distribution pricing principles, prices are economically efficient where they fall between incremental and stand alone cost. Part 6 limits DG prices to the bottom of this range. DG connections therefore have an advantage relative to most supply connections, which will incur a greater proportion of distributor's shared costs relative to DG.

i. describe their approach to developing prices for DG, including the value, structure and rationale for payments to owners of DG (ie ACOT/ACOD)

ii. disclose prescribed terms and conditions for all prescribed contracts for the supply of electricity lines services, which includes DG connection.

Summary of submission

48. In summary, we submit the following:

- We recommend that the EA review the rationale and purpose for providing favourable distribution prices to DG (relative to other supply connections) against its new statutory objective.

- We support aligning avoided interconnection charges to Transpower's economic costs but do not consider incorporating other avoided Transpower charges is a problem. For instance, Connection and New Investment Contract (NIC) charges are specific to distributors as they are based on a buildup of costs so they already represent economic costs.

- The main problem relates to incorporating interconnection charges into ACOT payments. These are caused by:

    i. Transpower being able to recover its interconnection charge revenue requirement regardless of changes in RCPD

    ii. the application of the 'with and without' test in the definition of incremental costs, which requires distributors to consider only their own costs and not the national benefit

    iii. the implicit requirement under Part 6 to pass on the full avoided costs.

- A potential solution to this problem would be to remove consideration of avoided interconnection charges from schedule 6.4 and require Transpower to signal these avoided costs through interconnection charges at each GXP or directly with DG. However, we acknowledge there are likely to be practical difficulties in adopting this approach.

- Any changes to schedule 6.4 should be accompanied by consideration of transitioning or grandfathering existing arrangements for existing DG connections.

- Any review of schedule 6.4 should be conducted as part of the proposed review of the pricing principles in March 2014 and concurrent with consideration of the TPM. It should include consideration of:

    i. the purpose for pricing under schedule 6.4

    ii. whether a separate DG pricing principle is necessary or whether DG pricing could be captured under the wider distribution pricing principles

    iii. the effect of removing ACOT payments on RCPD

    iv. options to price avoided interconnection charges based on Transpower's economic costs

    v. Consider transitionary requirements to preserve historic investment decisions.

Next Steps

49. We trust this submission provides useful input for the EA in its review of the TPM and of DG and distribution pricing principles. We would be happy to answer any questions you may have regarding this paper.

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