
Submission to the Electricity Authority

on

Transmission Pricing
Methodology: Connection
charges

Made on behalf of 21 Electricity Distribution Businesses

*PwC Submission on
behalf of 21 EDBs*

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Table of contents

Glossary	i
Submission on Transmission Pricing Methodology: Connection Charges	1
The classification of connection assets as interconnection assets is not a material problem	2
The case to move to a DRC based asset charge	3
Allocation of maintenance, operating and overhead costs	6
Concluding statement	7

Glossary

CIC	Connection Investment Contract
EA	Electricity Authority
EDB	Electricity Distribution Business
Grid	Transpower's national transmission grid
GRS	Grid Reliability Standards
GIP	Grid Injection Point
GXP	Grid Exit Point
IMs	Input Methodologies
IPP	Individual Price-Quality Path
NAaN	North Auckland and Northland
Part 4	Regulation under Part 4 of the Commerce Act 1986
TPM	Transmission Pricing Methodology
WACC	Weighted Average Cost of Capital

Submission on Transmission Pricing Methodology: Connection Charges

1. This paper forms our submission on the Electricity Authority's (EA) working paper, "Transmission Pricing Methodology: Connection charges" released on 13 May 2014 (the Working Paper). This submission has been prepared by PricewaterhouseCoopers (PwC) on behalf of the following 21 Electricity Distribution Businesses (EDBs or distributors):
 - Alpine Energy Limited
 - Aurora Energy Limited
 - Buller Electricity Limited
 - Eastland Network Limited
 - Electra Limited
 - EA Networks
 - 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 28% of electricity consumers, maintain 46% of total distribution network length and service 72% 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 incurred approximately 20% of Transpower's 2013 transmission revenue.
3. In October 2012 the EA consulted on a proposal for a new Transmission Pricing Methodology (TPM), set out in its consultation paper, "Transmission Pricing Methodology: issues and proposal" (the October Issues Paper). This paper considered that the methodology for setting connection charges was generally efficient and that material changes were unnecessary.
4. In response to feedback received on the proposal, the EA is to develop a second Issues Paper on the TPM in 2015. As an input to this work stream, the EA wish to better understand whether there are any inefficiencies with the existing connection charge arrangements. The Working Paper investigates this topic and specifically examines:

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- a. whether there is the potential for connection assets to be inefficiently classified as interconnection assets
 - b. whether adopting a Depreciated Replacement Cost (DRC) approach to calculating the asset charge component would be more efficient than the current approach, which allocates the aggregate asset charge by the Average Replacement Cost (ARC) of individual connection assets
 - c. whether the current cost allocation methodology for determining the recovery of maintenance, operating and overhead costs is more efficient than an approach that directly allocates these costs to connections.
5. This submission responds to the key matters raised in the Working Paper regarding these topics. In summary we submit that:
- a. the examples cited in the Working Paper of assets being inefficiently classified as interconnection assets do not appear to be a material problem in practice. The focus of the TPM review should be on the core principles of transmission pricing rather than resolving such exceptions.
 - b. the DRC approach to determining the asset charge component, while promoting more cost reflective and transparent prices will create variability in prices as well as transition issues which would need to be resolved.
 - c. price volatility could potentially be reduced through the use of annuity payments or through indexation of Transpower's regulatory asset base. Both would assist in removing price volatility but would require changes to Transpower's input methodologies (IMs) and individual price-quality path (IPP) under Part 4 regulation.
 - d. the ARC approach also currently distorts incentives for purchasing spur line transmission assets by distributors. This occurs where connection charges are lower than the DRC of connection assets. A move towards charges based on DRC may assist to alleviate these issues.
 - e. the current approach in the TPM to allocating operating costs is appropriate given the costs are shared or directly attributed to connection assets. We are however open to alternative approaches to attributing maintenance costs which might better reflect actual costs, subject to addressing concerns about price stability.

The classification of connection assets as interconnection assets is not a material problem

6. The Working Paper has identified the following two examples of where incentives may exist for connection costs to be inefficiently shifted to interconnection costs:
 - a. where connected parties may reconfigure connection assets into a transmission loop so that the assets are reclassified as interconnection assets
 - b. where assets are commissioned in a staged manner such that assets are shifted to interconnection costs.
7. The Working Paper concludes that enhancements to the interconnection charge methodology (eg a beneficiary pays approach) may reduce the impact of these issues by making interconnection charges more efficient.

We are not aware of any examples where assets have been reconfigured into a transmission loop

8. We are not aware of any specific examples where parties have deliberately positioned connection assets in a looped transmission configuration with the intent of avoiding connection charges. We note that the Meridian example cited in the Working Paper was never completed. Therefore the potential inefficiencies that have been raised in the Working Paper in relation to this issue, while theoretically possible, do not appear to be borne out in practice. Accordingly, we submit that TPM change targeted at addressing this issue is likely to be of little value in achieving the EA's statutory purpose.

Staged commissioning of connection assets

9. The Working Paper discusses the exemption sought by Transpower in relation to the commissioning of the Penrose to Albany section of the North Auckland and Northland (NAaN) transmission project. This is cited as an example of how transmission assets can be commissioned in a manner that may avoid certain parties paying connection charges. Outside of the TPM review process, the EA is considering developing a new policy to deal with future exemption applications that will better address similar situations that arise. However, the Working Paper suggests that changes to the TPM may reduce incentives to inefficiently reclassify connection assets and interconnection assets.
10. We consider that examples of projects such as this are rare and likely to be best dealt with under an exemption application.

The case to move to a DRC based asset charge

11. Transpower's aggregate asset charge, incorporating depreciation and a Weighted Average Cost of Capital (WACC) return, is calculated with reference to the DRC of all assets at the aggregate revenue level, consistent with Transpower's IMs and IPP determination. The debate in the Working Paper is how to efficiently apportion this aggregate asset charge to individual connection asset charges. The two approaches considered are:
 - a. the current ARC approach, which apportions total assets costs to connection using ARC as an allocator
 - b. the DRC approach as a proposed alternative which, while not fully set out in the Working Paper, appears to involve calculating the asset cost for each individual connection asset as the sum of:
 - i. Transpower's regulatory WACC multiplied by the DRC of the connection assets
 - ii. annual straight line basis depreciation of the asset.
12. The Working Paper considers the ARC approach is inefficient as connection charges are set with reference to the average remaining life (ie rate of depreciation) of all connection pool assets. This means connection assets that are relatively older, and which have a lower than average rate of depreciation, will be charged more than they otherwise would if they were not in the pool. The Working Paper proposes moving to the DRC based approach as this is more reflective of the actual asset costs associated with individual connection assets.
13. We agree with the conclusion in the Working Paper that there are advantages and disadvantages to each approach. One potential benefit of the DRC approach is that connection charges based on DRC may be more cost reflective, as charges are based on the historical cost of the connection assets depreciated over the useful life of the asset. This approach may result in efficiency benefits associated with aligning prices to costs and from greater transparency and scrutiny over Transpower's investment decisions. Despite this, we are concerned that adopting the DRC approach will create unnecessary volatility in transmission prices which may in turn lead to investment inefficiencies and transition costs.

Issues in moving to a DRC approach

Costs and inefficiencies regarding price volatility have not been assessed

14. Transpower's aggregate asset charge suffers less from the saw-toothed pattern of charges described in the Working Paper given assets of various ages are grouped together. This smooths aggregate charges overtime. The ARC approach seeks to replicate this smoothing for connection assets by averaging charges across the portfolio of connection assets, weighted by the ARC of individual assets.
15. Applying the DRC approach to individual connection assets will reduce this smoothing, although smoothing may still exist in the grouping of connection assets, resulting in connection charges that decline over the life of the asset and then increase when the asset is replaced. This results in a saw-tooth shaped connection-charge profile.
16. While the potential benefits from more cost-reflective prices under a DRC approach are considered in the Working Paper, we are concerned that inefficiencies and costs resulting from changing transmission prices have not been factored into the Working Paper analysis.
17. Price stability is highly valued by connected parties and end-consumers alike, is important in making investment decisions, and in the efficient functioning of the wholesale market. In our view, price variability under the DRC approach could lead to perverse outcomes and market inefficiencies in relation to:
 - a. **Payback periods for grid based investments:** A DRC approach pushes investment cash flows into the later part of the investment horizon as connection charges are high in the early years but fall over the life the investment. This means that the pay-back period will be longer under a DRC approach and the NPV potentially lower, given the discount rate weights early cash-flows higher. This will, in our view, result in more grid based investments being rejected and potentially may provide a bias towards distributed generation (DG).
 - b. **Competition in the wholesale market:** variability in connection charges will impact the competitive position of generators. Under the DRC approach generators with new connection asset would face higher connection charges and would be disadvantaged in bidding into the wholesale market relative to generators that have older connection assets. Wholesale market competition is therefore directly affected by the age of the connection assets. This in our view is inefficient and acts to disincentive newer generation as well as the refurbishment of older generation that may require replacement of connection assets.
 - c. **Distributor investments:** distributors sometimes have a choice of investing in their own network or relying on transmission investments (ie capacity augmentation). The DRC approach creates perverse incentives regarding the timing of these decisions. Distributors will be incentivised to rely on connection assets when these are older (where connection charges are low) but to invest in their own distribution assets when transmission assets are new (when charges are high). These decisions should be based on the relative efficiency of the investment over its useful life, rather than on the profile of transmission charges.

A declining asset charge is not typically evident in competitive market prices

18. Competitive markets typically recover the cost of assets using a flat charge set over the useful life of the asset. We understand that many Connection Investment Contracts (CICs) set charges with reference to the initial asset cost but smooth this over the contract period in an NPV neutral way (ie an annuity payment). Charges for many large consumers connected to distribution networks are also priced on this basis.
19. In competitive markets, it is rare to find asset charges that decline over the life of the asset. For example, vehicle and phone lease plans are predominantly charged on flat monthly fees. Bus or train fares do not decline with the age of the asset in use. Generator bids do not reduce as assets depreciate.

Accordingly, the Working Paper's assertion that a declining DRC based charge is more economically efficient appears at odds with competitive market evidence.

20. DRC is an accounting concept. It is useful for recording the remaining value of an asset over time. However, consumers are typically more concerned with the service potential of the assets. Where the level of service is arguably constant over the life of the asset then consumers can be expected to be comfortable with an even price profile.
21. With regards to Transpower's connection charges, while maintenance requirements for connection assets do change, the service level is broadly consistent over the life of the asset. We therefore agree with Transpower that connection charges could be viewed as a service fee and that a flat charge is therefore appropriate.

A move to a DRC approach is not consistent with how CIC prices are set

22. If Transpower's customers request a new connection asset or upgrade that is not required to meet the Grid Reliability Standards (GRS), then the terms, including price, must be negotiated between the parties under a CIC. As discussed above, we understand that many CIC charges are constant over the life of the contract.
23. This is perhaps a good example of the preference for price stability that connection customers have. However, more fundamentally, it highlights a potential divergence in how connection assets would be priced if a DRC approach is adopted for GRS connection assets. Charges for GRS connection assets would decrease over the life of the asset, whereas customer initiated work (ie under CICs) would be recovered through a fixed charge. This may impact upon investment decisions in relation to GRS assets.

Transition issues

24. We consider that there are issues that will arise in transitioning to a DRC based approach which are not discussed in the Working Paper.
25. Transitioning from the current ARC approach to a DRC approach will alter transmission charges across GXP and GIP connections. Price reductions would be expected for older connection assets and increases for new connection assets. This will rebalance prices across the country and, as discussed above, will change the competitive position of generators in the wholesale market and could impair the original business case to connect to these sites.
26. An issue for those distributors that allocate GXP connection charges directly to regional consumer groupings when setting distribution tariffs is that they will need to reallocate these charges across these consumers in line with the new DRC approach.
27. Furthermore, there may need to be consideration of payments to date in order to avoid over charging. This may be complex to resolve.

Can a cost reflective charge be set which resolves price volatility issues

28. We have considered whether it is possible to set a connection charge with reference to the DRC of connection assets but which avoids price volatility.
29. One approach we have considered is whether the annuity payment approach to setting charges under CICs contracts could be applied to connection pool assets. However, this option is likely to be incompatible with Transpower's regulated price path, under which aggregate asset costs are set with reference to aggregate DRC. That is, connection charges based on an annuity payment would under-recover the DRC-based price path in the early years and over-recover the price path in later years. Transpower's IPP would need to be amended to facilitate this approach.

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30. One further option that would allow prices to be set based on DRC and result in less price volatility would be to index Transpower's asset base using a price inflator. Distribution businesses are required to revalue their assets annually using CPI, and to treat revaluations as income for the purpose of assessing profitability. Indexed and unindexed approaches are NPV equivalent (in principle) but indexing has the advantage of smoothing prices overtime.

Other issues associated with the ARC approach

31. Transpower is in the process of selling spur line assets to distribution business as part of a programme to rationalise investments in non-core assets. Under clause 3.1.3 of the IMs, electricity distribution businesses (EDBs) that purchase Transpower assets can continue to claim Transpower's charges for a period of 5 years after the transaction. Where distributors operate these assets at a lower cost than the avoided connection charge they may keep this benefit for 5 years before passing on the savings to consumers through lower prices. The objective of this regulatory allowance is to incentivise EDBs to purchase Transpower assets where this benefits consumers in the long term through lower prices.
32. However, it has become evident that the ARC approach is disincentivising these transactions where connection charges do not reflect the cost of owning the assets, including the DRC value at the time of purchase. In this situation, distributors face financial disincentives to purchase these assets under the IMs.
33. We consider that a move towards charges based on DRC could help alleviate these problems. However, we note that several EDBs have already purchased assets based on the current ARC-based approach. Consideration of any transition issues associated with these transactions should be considered as part of the EA's review of connection charges.

Allocation of maintenance, operating and overhead costs

34. The current TPM apportions Transpower's operating costs to connection assets using cost allocators (ie replacement cost and line length). We also understand that Transpower directly attributes costs to some connection customers. The Working Paper concludes that it is more efficient if operating costs associated with individual connection assets are directly attributed to connection customers.
35. In principle we agree that, where possible, costs that are incurred solely in the provision of service to a customer should be directly attributed to that customer. Where costs cannot be directly attributed it is appropriate to apportion costs using allocators which are reflective of key drivers of cost.
36. We note that this view is broadly supported by:
- a. the electricity distribution services IMs, which allocate costs on this basis¹.
 - b. the electricity distribution pricing principles which recommend that prices should not exceed stand alone cost or fall below incremental cost.
37. The cost allocation rules applied in the current TPM therefore appear appropriate for allocating operating costs particularly given these costs are either shared or directly attributed to connection assets.
38. The Working Paper focuses on maintenance costs, in discussing whether costs could be better attributed to connection assets on an actual-cost approach. These costs could potentially be directly attributable to connection assets. We do not support an approach where Transpower simply on-charges maintenance costs in the year they are incurred to connection parties. This is likely to result in

¹ Transpower's IMs do not share this principle given cost allocation is effectively dealt with under the system operator agreement.

variability in prices, due to the lumpiness and year on year variability in maintenance costs. The current approach adopted in the TPM to allocate maintenance costs based on cost allocators (replacement cost and line length) smooth prices. We believe this approach is reasonable.

39. We are nevertheless open to alternative approaches that smooth maintenance costs but which would be more reflective of actual costs. For instance, total annual maintenance costs could be allocated to individual connections based on average historical maintenance associated with that connection. While not perfectly allocating maintenance costs to individual connections, this approach would result in more stable prices than directly attributing costs but would perhaps be more cost reflective than the current methodology.

Concluding statement

40. In conclusion we submit that:

- a. the examples cited in the Working Paper of assets being inefficiently classified as interconnection assets do not appear to be a material problem in practice. The focus of the TPM review should be on the core principles of transmission pricing rather than resolving such exceptions.
- b. the DRC approach to determining the asset charge component, while promoting more cost reflective and transparent prices will create variability in prices as well as transition issues which would need to be resolved.
- c. price volatility could potentially be reduced through the use of annuity payments or through indexation of Transpower's regulatory asset base. Both would assist in removing price volatility but would require changes to Transpower's IMs and IPP under Part 4 regulation.
- d. the ARC approach also currently distorts incentives for purchasing spur line transmission assets by distributors. This occurs where connection charges are lower than the DRC of connection assets. A move towards charges based on DRC may assist to alleviate these issues.
- e. the current approach in the TPM to allocating operating costs is appropriate given the costs are shared or directly attributed to connection assets. We are however open to alternative approaches to attributing maintenance costs which might better reflect actual costs, subject to addressing concerns about price stability.

41. We trust this submission provides useful input in reviewing the TPM. We would be happy to answer any questions you may have regarding this paper.

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