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Input Methodologies review – Topic paper 3, impact of emerging technologies

Submission to the Commerce Commission

Final

From the Electricity Networks Association

Contents

1.	Introduction	3
2.	Submission summary	3
3.	Overview of consultation paper	4
4.	Ring fencing technology investments	5
	4.1. ERANZ proposal	5
	4.2. Electricity Authority letter	6
	4.3. Recommendations	7
5.	Cost allocation adjustments	7
	5.1. ACAM revenue threshold	7
	5.2. Proxy cost allocators	8
6.	Recommendations	9
7.	Future capital recovery	9
	7.1. Options to address capital recovery risk	9
	7.2. Economic network stranding	12
	7.3. Recommendations	13
8.	Appendix	14

1. Introduction

1. The Electricity Networks Association (**ENA**) appreciates the opportunity to make a submission to the Commerce Commission in respect of the 2016 **Input Methodologies review, Topic paper 3 The future impact of emerging technologies in the energy sector, 16 June 2016 (the Emerging technologies paper)**.
2. The ENA represents all of New Zealand's 26 electricity distribution businesses (**EDBs**) or lines companies, who provide critical infrastructure to NZ residential and business customers. Apart from a small number of major industrial users connected directly to the national grid and embedded networks (which are themselves connected to an EDB's network) electricity consumers are connected to a distribution network operated by an ENA member, distributing power to consumers through regional networks of overhead wires and underground cables. Together, EDB networks total 150,000 km of lines. Some of the largest distribution network companies are at least partially publicly listed or privately owned, or owned by local government, but most are owned by consumer or community trusts.

2. Submission summary

3. The ENA recommends:
 - The Commission maintains its current interpretation of the definition of electricity lines services.
 - The Commission does not implement the proposal made by the Electricity Retailers' Association of New Zealand (**ERANZ**), or any other method, of ring-fencing EDB investments in emerging technologies.
 - The Commission does not develop a revenue allocation IM at this time.
 - The avoidable cost allocation methodology (**ACAM**) revenue threshold is not reduced. If it is reduced this will need to be based on more credible analysis than that contained in the Emerging technologies paper.
 - The Commission develops information disclosure (**ID**) requirements to provide more information on the rationale for the use of proxy allocators for cost allocation, providing these are not unduly onerous.
 - CFOs are not required to make a declaration regarding the use of proxy allocators with each disclosure.
 - The Commission takes immediate action to address the risk of partial capital recovery caused by emerging technology trends.
 - The Commission provides guidance on the criteria for approving an application to reduce asset lives. These criteria should take account of the difficulty in determining long-term capital recovery risk and thus should set a low threshold of evidence for approval.
 - The Commission makes the ability to reduce asset lives to mitigate the capital recovery risk caused by emerging technologies available to all EDBs, not just non-exempt EDBs.

- Any reduction in asset lives is applied through ID as well as price-quality regulation. The treatment must be consistent across the regulations.
- The 15% cap is removed, or at least increased, and should be able to be applied as many times as necessary to a particular asset.
- The IMs provide for the life of all assets commissioned from the start of the next disclosure year to be no more than 25 years.
- The Commission reaffirms its commitment to the NPV=0 principle, where EDBs are not exposed to the risk of asset stranding (partial, economic or otherwise) in exchange for a low WACC (where there is no compensation for such asymmetric risks).

3. Overview of consultation paper

4. The Emerging technologies paper carefully considers the potential for material change in the energy sector from a combination of changing consumer preferences and the increasing capabilities and declining costs of new electricity related technologies. The ENA is pleased to see that the Commission agrees with our view that these changes present opportunities for many parties, both current industry participants and others outside the electricity business. Consumers are likely to see material benefits from these changes.
5. The Emerging technologies paper recognises the potential for changes to existing industry structures and that traditional boundaries between industry participants could become blurred. It also recognises that how EDBs will respond to the changes and opportunities is unclear.
6. The Commission's current assessment is that major changes to the IMs are not needed at this time in response to the technology changes. In particular, the Emerging technologies paper considers that there is no need to ring-fence EDB investments in emerging technology assets. The Commission concludes that matters of industry structure are more appropriately handled by policy makers and that ring-fencing of investments in emerging technologies could not be progressed under Part 4
7. Although the Commission concludes that the existing IMs are broadly fit for purpose with regard to technology change, the Emerging technologies paper proposes some modest amendments to the IMs to address the potential implications of the technology change. These are:
 - Enabling EDBs to recover the costs of assets more quickly by reducing asset lives by up to 15% where the Commission agrees this is necessary to avoid the risk of partial capital recovery by EDBs
 - Requiring EDBs to disclose additional information regarding the rationale for the use and choice of proxy cost allocators
 - Reducing the revenue materiality threshold at which EDBs can apply ACAM from 20% to 10%.

4. Ring fencing technology investments

8. The Commission received submissions from some electricity retailers, but also from the Electricity Authority (Authority), that investment by EDBs in emerging technologies could affect competition in markets for providing services using emerging technologies. Some submitters suggested the Commission should restrict EDB investments in certain technologies.
9. We strongly support the Commission’s view that EDB investment in emerging technologies and markets should not be ‘ring-fenced’ as has been suggested. The Emerging technologies paper rightly concludes that matters concerning industry structure and intra-sector boundaries are a matter for policy makers and should not be handled under Part 4. It is also important that the benefits from improvements to business models and EDB efficiencies are shared across the various markets that the distributors serve, *as these changes evolve*. Enforcing some form of ring fencing/structural separation will likely limit potential gains as EDB investments in emerging technologies will be hindered while it is still unclear how the markets will develop – the risk remains that without EDB investment, these markets may not develop to their full potential.
10. The ENA notes that a revenue allocation IM is not currently in place. A revenue allocation IM may be of use where an EDB offers a bundled price covering both regulated and unregulated services. We are not aware of any EDBs that currently make or are considering such a product offering at this time. The ENA expects it would be difficult to develop a bundled product including a regulated price portion and an unregulated price portion, particularly where lines charges are passed on to consumers via an interposed contractual arrangement with retailers.

4.1. ERANZ proposal

11. ERANZ has recommended some detailed IM amendments that would have had the effect of requiring EDBs to source emerging technology services from arm’s-length sources (either related parties or third parties) and not own these technologies themselves.
12. The ERANZ proposal stemmed from an incorrect interpretation of the Part 4 regime. ERANZ considered that batteries and similar technologies fall outside the definition of electricity lines services. The ENA agrees with the Commission’s interpretation of the definition of electricity lines services. To argue that only assets that actually convey electricity can be classed as part of the regulated service would narrow the scale of the regulated activity to an unworkable extent (e.g. by excluding assets that are clearly used by the regulated business such as office furniture and financial systems from being recovered through regulated prices).
13. ERANZ proposed that domestic-scale batteries (and, we understand, other similar technologies) should only be included in the EDBs’ regulatory asset bases if they met certain criteria which confirmed they would not be likely to be used in competitive markets. The ERANZ proposal would be difficult to implement in practice, not least because the 15 criteria it suggests are rather broad, lack prioritisation or weightings and may require information the Commission does not have. For example, they include:

“Is the new technology likely to provide a service or an input into the essential facility for the provision of the regulated service output?”

“Is it likely to be easy for a provider to exit the market?”

“Is there likely to be a valuable resale market for the new technology assets during their economic life?”

14. These are not easy questions to answer and we do not think it would be sensible for the Commission to decide whether or not to enable an EDB to invest in batteries on the basis of such subjective assumptions.
15. More fundamentally, the ENA agrees with the Emerging technologies paper that Part 4 was not designed to (and cannot be used to) make changes to the industry structures.
16. The structural changes being put forward by ERANZ could conceivably go much further than just batteries to cover a wide range of potentially competitive technologies. The ENA considers that introducing these regulatory changes when it is not clear how the market will develop is risky. Too early regulatory intervention could risk killing off a market before it is established, to the long-term dis-benefit of consumers.
17. The ERANZ proposal would also be inconsistent with section 52T(3) of the Act as it would unduly deter investment by EDBs in other services.
18. Retailers’ concerns about inability to access network-related value streams associated with provision of battery services will also be addressed over the longer term through the movement towards “service-based” and “cost-reflective” pricing, whereby battery storage technology can be used to time-shift demand presented to the network (e.g. by storing electricity at off-peak times for use during peaks). To enable new pricing arrangements, retailers will need to actively participate in facilitating the shift to cost-reflective pricing by developing their systems to bill such approaches and ensuring they reflect to customers the structure of distribution charges.

4.2. Electricity Authority letter

19. The Authority¹ also raised some concerns regarding EDBs carrying out unregulated business activities. It provided a letter describing its approach to Transpower’s demand response programme, which placed restrictions on Transpower’s demand response activities and noted a concern in that context that subsidies may crowd out other investment. The ENA considers that a more significant risk is that the market may not evolve at all and that EDB investment in batteries is likely to help the market develop.
20. In order to achieve network benefits through the deployment of batteries it is essential that there is sufficient and committed availability of storage at peak times in order to displace or defer network investment. It is unclear at this point how this would occur in a decentralised, competitive retail market to achieve the necessary coordination amongst competing retailers to procure sufficient installations in localised areas of the network facing constraints. While mechanisms could be developed to achieve this, until such time as they are developed and there are working examples of this at the mass-market level, it would be inappropriate to lock distributors, who have the greatest motivation to utilise network alternatives, out of the market.

¹ Electricity Authority, ‘Implications of regulatory treatment of cash flows for emerging technology’ Letter to Commission 1 June 2016.

21. We also note that relatively few domestic scale batteries have been obtained by consumers in New Zealand. If EDBs were subsidising batteries to a material scale, presumably uptake would have been much higher. This implies the risk of subsidisation is not occurring in practice.
22. The Authority is concerned that cost allocation arrangements may give EDBs an advantage compared to other parties in the provision of emerging technologies services. The ENA does not consider this is a valid concern. As noted by the Commission, the cost allocation IM is fit for purpose. It allocates costs and asset values based on causal or proxy allocators (and the basis for choosing particular allocators seems likely to become more transparent) unless the scale of unregulated business activities fall below a materiality threshold, in which case an avoidable cost approach can be applied.
23. Further, the Authority is focusing on a very narrow concept of competitive advantage. Retailers have an advantage through their customer relationships. Other potential service providers may have their own brand and technology advantages. Given that the market for domestic scale batteries does not yet meaningfully exist in New Zealand it is not clear which of these advantages, if any, will be the most relevant in gaining market share and profits.

4.3. Recommendations

24. The ENA recommends:
 - The Commission maintains its current interpretation of the definition of electricity lines services.
 - The Commission does not implement the ERANZ proposal, or any other method, of ring-fencing EDB investments in emerging technologies.
 - The Commission does not develop a revenue allocation IM at this time.

5. Cost allocation adjustments

25. The Emerging technologies paper considers that the existing cost allocation IM is broadly fit for purpose but does propose two changes, discussed below.
26. The ENA supports the Commission view that the cost allocation IM is fit for purpose. We do not support most of the proposed changes.

5.1. ACAM revenue threshold

27. One proposed change is to reduce the revenue threshold for applying ACAM. The current threshold provides that ACAM may be applied where total unregulated revenues of the EDB are less than 20% of total regulated revenues of the EDB. The proposal is to reduce this threshold to 10%. This change is proposed based on an assessment of how well the current threshold is meeting the policy intent.
28. When the original IMs were set in 2010 the Commission's intent was that ACAM should not be applied where it would be likely to increase regulatory revenues of an EDB by more than 2%. The Commission's analysis at that time indicated that a 20% revenue threshold would limit the impact on revenues from applying ACAM to this level. The Emerging technologies paper contains an update of this analysis which concludes that applying the current 20% revenue threshold is likely

to have an impact on revenues of more than 2%. As a result, the Commission proposes to reduce the threshold to 10%.

29. The ENA has reviewed the analysis in the Emerging technologies paper and does not consider that it is sufficiently credible to justify a reduction in the ACAM threshold. The analysis makes some core assumptions that are not credible and contains errors in the analysis. These include:
- It assumes that all EDBs that apply ABAA (or that would apply ABAA if they did not use ACAM) use revenue as their cost allocator. As a review of ID schedules 5f and 5g would make clear, this is not the case.
 - It assumes that all EDBs that use revenue as their cost allocator use the industry average proportion of regulated and unregulated revenues to allocate regulated and unregulated costs. EDBs do not do this. If they used revenue as the allocator they would use their individual company balance between regulated and unregulated revenues.
 - It assumes that where EDBs apply ACAM they allocate 100% of shared operating costs to the regulated business. Again a review of schedules 5f and 5g would make it clear this is incorrect.
 - The analysis sources total revenue from EDBs' annual reports, but is inconsistent in whether it uses Parent Company total revenue or Group total revenue.
 - The analysis does not correctly treat the non-electricity regulated revenues that are earned by Vector and Powerco and which should count towards the denominator, not the numerator, of the equation to determine whether the 20% threshold is met.
 - The analysis fails to treat capital contributions correctly. The analysis in the Emerging technologies paper assesses disclosed regulatory revenue (which excludes contributions) against total revenue reported in annual reports (which includes contributions as revenues). This leads to an over-estimate of total revenues to unregulated revenues.
 - The analysis has been undertaken for the 2015 year only. Given variation that occurs between years it would be more robust to make the assessment over multiple years to confirm the 2015 results are not outliers.
30. On the basis of the discussion above, the analysis put forward to reduce the 20% ACAM threshold is not credible. In the absence of any credible analysis suggesting it needs to be changed, the ENA supports retaining the current 20% threshold.

5.2. Proxy cost allocators

31. The Emerging technologies paper also proposes additional requirements for the use of proxy cost allocators by EDBs. These are:
- Requiring EDBs to disclose why a causal allocator could not be used
 - Requiring EDBs to disclose why the proxy allocator chosen was appropriate
 - Requiring the Chief Financial Officer of each EDB to provide a signed declaration that no causal allocator could be used and the selected proxy allocator was appropriate.
32. The ENA is comfortable with EDBs disclosing the rationale for the use of particular proxy allocators. However, we consider the required CFO declaration is unnecessary and onerous. The

disclosed rationale will be certified by directors as part of the overall certification of the disclosures and this provides comfort to interested parties regarding the accuracy of disclosures. Other aspects of the disclosures do not require a declaration by management as well as a certification by directors so it is not clear why this is necessary. In fact, directors will require assurances from management before certifying disclosures. It is not clear why this should be the only instance within ID where management certification is also required.

6. Recommendations

33. The ENA recommends:

- The ACAM revenue threshold is not reduced. If it is reduced this will need to be done on more credible analysis than that contained in the Emerging technologies paper.
- The Commission develops ID requirements to provide more information on the rationale for the use of proxy allocators, providing these are not unduly onerous.
- CFOs are not required to make a declaration regarding the use of proxy allocators with each disclosure.

7. Future capital recovery

34. The Emerging technology paper recognises that one risk associated with the development of emerging technologies is that EDBs may become unable to fully recover their investments in long-life assets. This would occur where a substantial proportion of EDBs' consumers either disconnect from the network or (more likely) use a selection of emerging technologies to substantially reduce their usage such that EDBs are unable to obtain sufficient funds to recover their costs from existing consumers.

35. The Commission has expressed concern about future capital recovery. The ENA shares this concern. Their first concern is with the potential for EDBs to be unable to *fully* recover regulated capital investments in the medium to long term because of changes to markets from technology and consumer preferences (partial capital recovery). The risk here is that assets may become materially underutilised and result in unsustainable price increases to the remaining consumers who rely on these assets. The Emerging technologies paper considers that, in the face of this uncertain but plausible and negative consequence it is prudent to take steps now to mitigate the potential risk. The ENA agrees with this logic and considers that the proposal is likely to reduce price shocks for future consumers.

7.1. Options to address capital recovery risk

36. The option put forward in the Emerging technologies paper is to allow EDBs that are subject to price-quality regulation to apply, before the start of a price-quality period, for a reduction in their asset lives by up to 15%. This would be subject to Commission approval. The Emerging technologies paper notes that this would be an NPV neutral option as the EDB would earn a full return of capital and no more.

37. The ENA considers that this proposal is a useful start but is insufficient to address the scale of the problem. Globally there is a drive to increase the proportion of renewables in the electricity generation sector, led by countries with high proportions of coal and gas-fired generation. This is strongly pushing improvements in the efficiency of solar panels and battery storage technologies, with substantial R&D expenditure in these areas. There is therefore a high probability that within the next 10-15 years such technologies will enable consumers to make substantial reductions in their contributions to the costs of networks, if not go off-grid. When combined with a prohibition on the use of fixed charges to recover a large proportion costs from residential consumers along with a political unwillingness to consider reforming the Low Fixed Charge Regulations, there is a substantial risk of EDBs being unable to recover their costs. If this is not addressed, EDBs may pull back on investment programmes and/or increase prices to remaining (and dwindling) customer bases. Neither of these outcomes would be in the long-term interest of consumers.
38. The parties that are most likely to suffer in such circumstances are commercial and industrial consumers whose load requirements seem unlikely to be met by solar and batteries or similar technologies. This could reduce New Zealand's global competitiveness by increasing the costs faced by these businesses. Residential consumers who either rent or are unable to afford the up-front capital costs of solar may also be badly affected.
39. Accordingly, the ENA recommends that the Commission immediately progresses two measures to compensate for the partial capital recovery risk resulting from the falling price of supply alternatives. These measures are:
- A strengthened version of the proposal in the draft decision to be able to apply for a 15% reduction in asset lives, in which it is made available to all EDBs (not just non-exempt EDBs), the 15% cap is lifted or removed and the Commission provides guidance on the criteria for making applications for the asset life reduction
 - A provision that the life of all new assets is no more than 25 years.

These are discussed in more detail below.

Improvements to the 15% cap proposal

40. The ENA considers that the 15% cap proposal could be improved.
41. The requirement is for an EDB to apply to the Commission with evidence of a future risk of partial capital recovery. If the risk is imminent, there may be reasonably good evidence to justify the claim, but it is unlikely that reduced asset lives at that point would be of much help. If the risk is distant but credible it may be challenging to place concrete evidence to the Commission that partial capital recovery will happen. EDBs and the Commission will be required to debate probabilities in an environment that is highly uncertain. If the Commission retains the requirement that it must approve these asset life reductions, it should published guidance on how the applications will be assessed and on the level of evidence necessary. This level will need to be relatively low if the option is to be meaningful and useful.
42. The ability to apply to reduce asset lives should be available to all EDBs. Exempt EDBs face the same risk of asset stranding and partial capital recovery as other EDBs. While exempt EDBs could increase prices to effectively recover their investments early, this would not be consistent

with their regulatory asset values as reported in ID and would deliver deceptively high reported ROIs.

43. It is not clear what, if any, linkage the proposed 15% reduction in asset lives would have with ID. We consider that any asset that has its life reduced would need to maintain that reduced life after the end of the price-quality period and disclose the reduced life in disclosures. The different regulatory regimes need to be consistent.
44. The ENA also notes that the 15% cap seems fairly arbitrary and may not be appropriate across all networks. If the Commission retains discretion on when to approve a reduction in asset lives, the size of the asset life reduction could also be part of that discretion and, as noted, would need to be justified by the EDB. Additionally, locking in the 15% value to the IMs creates a risk that this could be found to be too little but by the time of the next IM review it is too late. The ENA submits that if market changes involve an increasing risk of asset stranding as time goes by then the Commission needs to be able to respond and not wait for the next IM review to make changes.
45. The Emerging technologies paper proposes that an asset life may only be reduced once under this proposal. This appears to be mainly for administrative simplicity reasons. The ENA submits that, if emerging technologies are having a significant effect, more than one asset life reduction may be necessary to ensure full capital recovery.

25 year maximum life for new assets

46. In addition, we recommend the IMs specify a reduced life for all new assets commissioned by an EDB. This would be on the basis that the risk of partial asset recovery is particularly large for new assets and any negative investment incentives resulting from partial capital recovery would affect investment in new assets. The ENA suggests that the IMs provide that all new assets have a life of no more than 25 years (i.e. an asset's life would be the lower of 25 years or the life that would be determined for that asset in accordance with clause 2.2.8 of the IM determination). This could be applied from the start of the next disclosure year and any difference between actual and forecast depreciation could be addressed through the capex IRIS wash-up.
47. Our assessment is that, had this rule been in place at the time of the 2015 DPP reset, it would have increased allowable revenues by 2% on average across all non-exempt EDBs. The impact on customer prices should therefore be manageable.

Conclusion

48. A general principle underpinning the current IMs is that assets are recovered over their physical life. Technology change is increasingly causing EDBs to think in terms of the economic life of assets, which is looking increasingly short. We consider that the two proposals outlined above would make the regulations better reflect the economic life of the assets and would work reasonably well together. The 25 year maximum life proposal would improve investment incentives for new assets. The ability to apply for a reduction in the life of all existing assets would mitigate the risk of partial capital recovery as it applies to sunk assets. Both proposals are consistent with the Commission's core principle of an ex ante expectation of real financial capital maintenance and consumers will be NPV neutral overall.

7.2. Economic network stranding

49. The Emerging technologies paper explains why the 15% asset life reduction proposal is not intended to fully resolve the risk to future capital recovery that is posed by emerging technologies:²

EDBs ultimately bear the risk of economic network stranding (as opposed to asset stranding). They are therefore best placed, and have the strongest incentive, to manage this risk, for example through pricing (eg, to ensure uptake of solar PV is not inefficiently incentivised). Our proposal expands their ability to mitigate this risk. We would expect EDBs to act if they genuinely see this risk increasing.

50. The ENA does not accept that the distinction between asset stranding and “economic network stranding” is meaningful and the latter seems to be a new term that the Commission has created. Economic network stranding is presumably just the contemporaneous stranding of multiple assets or simply “partial asset stranding”. The point at which asset stranding becomes economic network stranding is unclear – what proportion of the network would need to be stranded? The key point is that having invested to meet customer demands, an EDB is unable at a certain point in time to recover the costs of the original investment.
51. While EDBs have an incentive to manage this risk, since regulation may ultimately become superfluous in an environment where consumers have competitively priced alternatives, the ENA submits that in fact EDBs have limited ability to manage the risk, for a number of reasons:
- Distributors are unable to enter into long-term contracts with the great majority of consumers to manage the risk of consumers disconnecting before full cost recovery is achieved.
 - The Government requires distributors to provide continuous supply to all customers connected prior to 1993. The threat of regulation prevents EDBs from increasing line charges to high cost to serve customers in rural areas, thus making it attractive to those consumers to remain connected to the network and requiring subsidies from consumers in denser network areas.
 - The Government requires distributors to set variable tariff structures and there appears to be no political appetite to change or remove the Low Fixed Charge Regulations as this would potentially result in low users being worse off (in the short term). The inability to recover reasonable proportions of costs to serve residential consumers with fixed daily charges removes a key tool for distributors to reflect their costs and therefore for customers to make efficient investment decisions about the value of alternatives.
52. The ENA does not believe it is acceptable that the Commission has raised the prospect of EDBs failing to fully recover their investments and suggesting that this would be acceptable if asset stranding reached a particular level. This is inconsistent with the FCM=0 core economic principle and will not promote section 52A(1)(a). The ENA strongly recommends that the Commission

² Emerging technologies paper, paragraph 93.

reaffirm its commitment to the principle that EDBs do not bear stranding risks, in exchange for setting a low WACC that does not reflect the asymmetric risk associated with asset stranding.

7.3. Recommendations

53. The ENA recommends:

- The Commission takes immediate action to address the risk of partial capital recovery caused by emerging technology trends.
- The Commission provides guidance on the criteria for approving an application to reduce asset lives. These criteria should take account of the difficulty in determining long-term capital recovery risk and thus should set a low threshold of evidence for approval.
- The Commission makes the ability to reduce asset lives to mitigate the capital recovery risk caused by emerging technologies available to all EDBs, not just non-exempt EDBs.
- Any reduction in asset lives is applied through ID as well as price-quality regulation. The treatment must be consistent across the regulations.
- The 15% cap is removed, or at least increased, and should be able to be applied as many times as necessary to a particular asset.
- The IMs provide for the life of all assets commissioned from the start of the next disclosure year to be no more than 25 years.
- The Commission reaffirms its commitment to the NPV=0 principle, where EDBs are not exposed to the risk of asset stranding (partial, economic or otherwise) in exchange for a low WACC (where there is no compensation for such asymmetric risks).

8. Appendix

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

Alpine Energy
Aurora Energy
Buller Electricity
Counties Power
Eastland Network
Electra
EA Networks
Horizon Energy Distribution
Mainpower NZ
Marlborough Lines
Nelson Electricity
Network Tasman
Network Waitaki
Northpower
Orion New Zealand
Powerco
PowerNet
Scanpower
The Lines Company
Top Energy
Unison Networks
Vector
Waipa Networks
WEL Networks
Wellington Electricity Lines
Westpower