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Vector

Submission on the Electricity Authority's distribution connection pricing: proposed code amendment

creating a new energy future

Executive summary

1. This is Vector's submission on the Electricity Authority's (Authority) Connection Pricing consultation.
2. We note that Vector requested information under the Official Information Act from the Authority to inform our submission. We have not yet received all information requested which we consider was necessary to inform our submission. Vector therefore reserves the right to add to this submission once it has received and considered the information requested.
3. This submission has no confidential information and we are happy for it to be published on the Authority's website.
4. We have also submitted an expert report from Axiom Economics and, along with Orion, a report from HoustonKemp.
5. We greatly appreciated the Authority meeting with us to discuss and clarify aspects of the proposal.
6. Vector remains deeply concerned by aspects of the Authority's proposed changes to connection pricing for electricity distribution businesses (EDBs).
7. We are concerned that:

- The Authority may be acting outside its jurisdiction and encroaching into the Commerce Commission's (Commission) remit, thereby undermining certainty in economic regulation which governs EDBs.
- There are significant shortcomings in the Authority's problem definition, and little if any effort has been made to support the problem definition with empirical evidence.
- We agree with the Authority that connection pricing should be efficient (i.e. paid by the causer of the cost) which aligns with other high-growth infrastructure providers (e.g. Watercare and Auckland Transport) and our understanding of Government intent that "growth paying for growth".[1] However, the Authority has not provided empirical evidence that would confirm whether existing connection prices, charged as upfront payments, are either efficient or inefficient, nor attempted to explain how electricity distribution is somehow different from other infrastructure, including transmission where connections are not subject to any similar reconciliation requirements or limitation on upfront connection charges.
- Some of the core proposals are not supported by sound economic or pricing theory.
- There has been insufficient consideration of the interests of existing consumers compared to that of connecting parties, such as the serious risk of cross-subsidies through the practical inability to tailor individual tariffs to new connecting parties, or

[1] See recent statements made by Minister for RMA Reform Chris Bishop in the House, available: https://www.parliament.nz/mi/pb/hansard-debates/rhr/combined/HansD_20241210_20241211

the underwriting of commercial enterprises by existing users where the future revenues of a new connecting party are highly uncertain.

- The Authority has provided an inadequate cost-benefit-analysis to support its proposals and we are not aware of any outreach to consumers, other than EV charge point operators and developers.
- Some of the data used to support proposals is erroneous e.g. disclosure data used to calculate current reliance limits;
- The Authority has moved at pace which is reflected in shortcomings with the problem definition, some ill-considered solutions (e.g. the reliance limit), along with a lack of evidence provided and insufficient engagement given the major impact of these proposals; and
- The Authority's retention of consultants for this workstream who have recently completed work in the same area for a specific segment of industry participants[2] is also a concern. While we acknowledge it can be challenging to find consultants in New Zealand who are completely unconflicted, we believe an obligation nevertheless exists upon the Authority to retain consultants that do not have pre-determined positions on fundamental aspects of the Authority's proposals – or at the very least, to disclose the potential conflict and explain how it has been managed.

Summary of key points

Topic	Vector submission
The impact of the proposals on Vector and our customers will be significant	Vector has significant concerns about the Authority's proposals, most pressingly, its proposal to implement a reliance limit part-way through the default price-quality path 2025-2030 (DPP4). Arbitrarily limiting Vector's capital contributions to 82% of growth expenditure will have a significant and disproportionate impact on Vector and our customers. The Authority's own consultation document attempts to estimate the price increase for all Auckland consumers as a result of its proposals. We appreciate assurances from the Commission and the Authority that they will work through the financeability impacts of the current proposals. However, we still have significant concerns given – • It would require approvals potentially from two separate regulators (i.e. through the exemption process and/or the Commission s54V process);

[2] *Distribution network access for public EV chargers – Overview and options,* Concept Consulting, April 2023. Prepared for Drive Electric. Available online: https://driveelectric.org.nz/wp-content/uploads/2024/12/Concept-Consulting-brief-for-Drive-Electric-on-distribution-network-access-2-12-1.pdf

	• It is not good regulatory practice to implement such wide-ranging reforms in such truncated timeframes; and • It undermines confidence in the level of certainty that can be placed on current and future regulatory decision of the Commerce Commission (and ultimately Part 4 including the input methodologies and DPP / CPP decisions) We strongly recommend that the Authority pauses to allow a better definition of the problem to be determined and a more robust consultative approach to developing solutions(including whether any perceived problems surrounding EDB incentives can be better and more proportionately addressed at source i.e. through regulatory change by the Commission) If the Authority decides to progress its proposals we encourage it to delay implementation of any proposals that impact the Commission's recently allowed DPP revenues and allowances until the next Commission reset, (for completeness, for the reasons discussed in the submission, we consider the reliance limits should be entirely abandoned). We also consider the timeframe for full reform is overly rushed. We don't consider the Authority could justify implementing full reform until the impact of the fast-track measures (if these are implemented) can properly be assessed.
Jurisdiction	We are concerned that the Authority's proposals appear to encroach on the jurisdiction of the Commission. The Authority's proposal to implement 'reliance limits' can have the effect of increasing the investment required by EDBs in their asset base and therefore radically changing both the capex and the allowable revenues determined by the Commission. We consider it is important for the Authority to explain how these proposed reforms fall within matters that are properly regulated by the Code rather than by the Commission via DPP4, Information Disclosure regulation, IRIS incentive regimes and the Input Methodologies.
Problem definition	The Authority has not established any significant problem that would be best addressed by the proposed reforms. The Authority is concerned that electrification is being suppressed due to connection charges that are inefficiently high, however, it has not provided any empirical evidence to suggest this is the case. While the level and trend in capital contributions

	is clear and unambiguous, the Authority has done no analysis to determine whether current levels are too low, too high, or about right, from an efficiency perspective. A key concern driving the Authority's proposals appears to be the potential incentive for EDBs to obtain benefits under the Commission incentive scheme under Part 4 of the Commerce Act (i.e. through the incremental rolling incentive scheme - IRIS). We consider that: • This is unlikely given the practical realities of connecting a large number of customers per year would preclude EDBs gaming the incentive framework in the way suggested by the Authority (and its consultant report from CEPA). • The available evidence suggests this is not the case. The trend in DPP2 (2015-2020) and DPP3 (2020-2025) has been for EDBs to be penalised under IRIS suggesting EDBs have not been using capital contributions to obtain benefits under the incentive regime. Vector's capital contributions policy has been a key plank in managing and successfully delivering significant growth in Auckland. We connect around 15,000 new connections annually and have delivered 80,337 new connections over the past 10 years. Our capital contributions policy has kept our Regulated Asset Base (RAB) and all customer bills lower than they otherwise would have been, a point not recognised by the Authority. Accordingly, we consider this has promoted the benefit of our consumers.
Reliance limit	One of our fundamental concerns in the fast-track proposals is the reliance limit. This will result in harm to existing consumers by arbitrarily limiting the amount an EDB can recover through capital contributions. For the vast majority of connections (such as mass market) it will not be practical to recover any residual of the connection costs not paid for through capital contribution via a bespoke ongoing tariff or charge. By definition, any connection costs an EDB is unable to recover up front will enter their RAB, increasing ongoing lines charges. This will require existing consumers to pay that residual amount which will effectively be a cross-subsidy. The Authority has not dwelled on the impact of the reliance limit increasing ongoing lines charges. This proposal (due to both the financial impacts and uncertainty) will have a dampening effect on necessary network growth and reinforcement investment to support the energy transition and, accordingly, is likely to harm the long-term benefit of consumers

	along with the broader "NZ Inc." policy goals of greater electrification to achieve net zero. Furthermore, arbitrary reliance limits undermine the Authority's assertion that connection prices should be efficient (i.e. if, prices are efficient then what role does a reliance limit play). We do not consider the approach to implementing the reliance limit is good regulatory practice. The proposed limit for the fast-track phase is 82% for Vector and is merely the historical ratio of capital contributions to connection-related capex. If the aim is efficient prices, how could 82% of the connection cost be efficient, except purely by coincidence? There no evidence provided to confirm whether it is or is not. If the aim is efficient pricing, a price's ratio to connection capex is irrelevant. We are not aware that the Authority is drawing on any regulatory precedent (overseas or otherwise) in imposing the reliance limit. It is doing so simply to halt a trend it has not proven is either positive, neutral or negative for consumers. Despite this, the Authority is pursuing this major change (with a major impact on Vector and our customers) at pace. For completeness, as described above and at we are also concerned the proposal encroaches on the Commission's clear jurisdiction to regulate prices/revenue and so the Authority is not empowered to implement this proposal. We strongly recommend the proposed reliance limits be abandoned.
Reconciliation methodology	At fast-track, the proposed reconciliation methodology is essentially a disclosure obligation. We support the intent in providing greater transparency to connection applicants to ensure an equal footing between parties in negotiating efficient connection contracts. We also support the methodology requiring connecting parties to make a contribution to common costs. In our view this is crucial to managing both customer equity and efficiency. However, we are concerned about the potential for the reconciliation methodology to default to becoming the mandatory pricing approach at full reform. We consider the benefit of flexibility in pricing to meet customer and network needs has been significantly underweighted by the Authority. In addition, if the reconciliation methodology is adopted at full reform as currently drafted, we are concerned it will benefit new connecting customers at the expense of existing customers. This is because:

	• It exposes existing customers to the risk that the new customer disconnects before they have paid the incremental cost, leaving those costs to be recovered from the existing customer base. • This risk is particularly acute in the context of connection applicants providing new services where there is uncertainty around optimal locations, commercial models, technology and customer preference and demand. • The recent announcement that Solar Zero, owned by multi-national investor BlackRock (also an investor in the charge point operator Jolt), is in liquidation demonstrates this is a live issue in New Zealand. In our view, this would undermine the Authority's additional and clear statutory objective to protect the interests of domestic consumers and small business. We strongly support retaining flexibility in pricing to allow distributors to meet network and customer needs. However, if the reconciliation methodology is required at full reform the Authority must take steps to ensure existing customers are not exposed to the risk new customers exit before their full costs are recouped. We also recommend if the reconciliation is the basis of full reform that it does not apply to high-volume, low-cost connections. This will enable distributors to have individual tariffs to recover incremental costs not recovered upfront and to eliminate existing customers underwriting that incremental cost recovery by requiring a security guarantee from connecting parties (as in Australia).
Impact on competition for contestable connections	If the Authority adopts the proposed reconciliation methodology in full reform, we are also concerned that it may have the effect of lessening or undermining competition in downstream markets for contestable connections. This has potential implications under section 36 of the Commerce Act, and harming consumer benefit more broadly. Because the Authority's approach bundles the connection and distribution service together, it results in pricing connection services at less than incremental cost. This will effectively eliminate the potential for competition in connection services. This is contrary to the Authority's statutory objective. We are also concerned about the potential legal risk to distributors if they are, effectively, required by the Code to undercut third parties who could compete in connection services. The Authority has suggested distributors make a payment to the applicant or their contractor to mitigate competition impacts.

	However, we are not clear how this would or could work in practice (and note competition impacts could occur in a broader range of circumstances than suggested by the Authority in the consultation paper). The Australian approach does support competition in contestable connections.
Incomplete references to overseas jurisdiction	The Authority has suggested it has drawn on precedent from overseas jurisdictions, particularly the UK and Australia. We consider it has missed key nuances from Australia in terms of the cost-revenue test (as it is termed in Australia). In particular: The consultation paper summarises the Australian approach as, "*connectors pay incremental cost net of incremental revenue.*"[3] However, this is only the case in the NEM and only applied to connection services offered by a particular distributor that are classified as standard control services. As explained in HoustonKemp's report and this submission there is significant diversity in Australian connection pricing approaches in the National Electricity Market (NEM) and, for contestable connection services, the incremental cost is recovered upfront in its entirety (e.g. In NSW most connection services are contestable and therefore paid upfront in their entirety by the connecting party).

8. We have also responded to the Authority's consultation questions in Appendix A to this submission.

Managing the impact of the proposals

9. Vector has significant concerns about the Authority's proposals, most pressingly, its proposal to implement a reliance limit part-way through the default price-quality path 2025-2030 (DPP4). Limiting Vector's capital contributions to 82% of growth expenditure (and only 82% of what the Commission has just last month endorsed in setting Vector's DPP4 price path through to 2030) will have a significant and disproportionate impact on regulatory certainty, Vector and our customers.

10. We do not consider the Authority has jurisdiction to impose the reliance limit as proposed nor do we consider the proposals will promote the long-term benefit of consumers. This is further discussed on page 15 and pages 22-24] There is a real risk the reliance limit will undermine necessary investment to support electrification. The proposals are likely to benefit new connections at the expense of existing customers.

[3] Electricity Authority, *Distribution connection pricing proposed code amendment: consultation paper* (October 2024), page 31

The Authority has also failed to show whether prices at, below or above an EDB's current reliance limit would be efficient or inefficient.

11. Along with concern about jurisdiction and the merits of the proposals, the proposed timing of the proposals is not reasonable given the major impact and burden it will impose.

12. The Commerce Act Part 4 regulatory framework is purposely designed to promote certainty for EDBs (and their investors) over their revenue and expenditure requirements for a five-year price-path. This certainty is a fundamental aspect of Part 4 of the Commerce Act regulatory design:

    - EDB revenue and expenditure requires approval by the Commission which limits investor returns. The trade-off is investors have certainty around expenditure and revenue over the price-path;
    - This is particularly crucial in the current operating environment where EDBs have major upcoming capex programmes with long lead times.

13. The Commission has considered and allowed for Vector's current contributions policy by determining Vector's DPP4 price-path including factoring that 100% of Vector's growth capex would be funded through capital contributions. This kept Vector's RAB (and revenue requirement of existing customers) much lower than it otherwise would have been.

14. If the 82% reliance limit is implemented, the Authority's analysis is Vector would require a 15% increase in capex over the last four years of DPP4. This would require an additional $28.25 million of maximum allowable revenue resulting in an increase in customer bills.[4] We estimate this will require increase in net capex of ~$140m over DPP4 (RY27 to RY30. However, over time this impact could become more significant (for example if our customer demand increases) and with a lower interest rate environment (and therefore lower WACC) the limit could stress financeability metrics over which the Authority has no visibility.

15. The Authority is concerned that the current connection prices risk supressing electrification and hence demand for connections. We do not think this has been established by the Authority. However, if this is correct, EDBs will need to model the impacts and reforecast based on a greater growth in connections than is currently assumed, with presumably some counteracting suppression of demand due to higher ongoing lines charges for all consumers. This will require the recasting of asset management plans and reassessment of price paths by the Commission. We note that application of the expenditure caps applied by the Commission in setting the 1 April 2025 starting prices will also need to be reassessed. This is due to the caps being based on historic spend. Historic spend would have been under existing connection pricing approaches. Historic spend would need to be adjusted applying the Authority's connection pricing proposals to arrive at meaningful caps.

[4] Electricity Authority, Distribution connection pricing proposed code amendment: consultation paper (October 2024) at 10.29

Financeability risk

16. The Authority's consultation paper states "*it has considered the risk that changes to capital contributions could increase the financeability challenges distributors have highlighted*" but "*We expect these matters can be worked through and resolved, as the legislation anticipates under s54V of the Commerce Act"* as well as though the exemption process.[5]

17. We appreciate assurances from the Commission and the Authority that they will work through the financeability impacts of the current proposals including resetting capital allowances, allowable revenues and price paths. However, this will require multiple approvals and extensive rework of only recently completed large processes, applications and approvals from potentially two separate regulators (i.e. through the exemption process and/or the Commission s54V process) in an entirely novel situation that neither EDB nor the regulators have experience working through. Accordingly, EDBs, their investors and consumers will face significant uncertainty around how the implementation of this regulation and interplay between two separate independent energy regulators will play out.

18. This clearly raises financeability risk as EDBs such as Vector do not have certainty over their revenue or expenditure allowances heading into the next DPP period and at a critical juncture for electrification of the New Zealand economy.

Indicative timing

19. The Authority's indicative timing is for fast-track elements to be implemented by 1 April 2026 and full reform by 1 April 2027. If the Authority implements its proposed fast track Code amendments, then our expectation is that the Authority will, under s 54V of the Commerce Act, ask the Commission to reconsider DPP4. If the Authority then implements its indicative full reform then Vector's expectation is that the Authority will, once again, need under s 54V of the Commerce Act ask the Commission to re-open DPP4 (particularly if the reliance limits remain or are reduced).

20. Re-opening the price-path to manage the impact of the reliance limit and increased costs associated with system change and changing process requirements for new connections (or any of the other proposals) would be a major and costly undertaking. This will be at significant cost to EDBs and the Commission, with an unprecedented need to twice reopen a single price-path due to the actions of another regulator. At the end of the day, these costs are borne by consumers. Other EDBs may be in the same position which would compound the Commission's task.

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[5] Ibid at 7.99

21. We do not consider it good regulatory practice to implement such wide-ranging reforms in such truncated timeframes. It may not leave the Authority or stakeholders sufficient time to consider feedback from submitters or work through the potential impacts on different parties. Rushing such major changes risks unintended negative customer outcomes. It will also likely lead to a string of amendments and rework which comes at a cost ultimately borne by consumers.

22. We strongly recommend that the Authority slows down to allow a better definition of the problem to be determined and a more robust consultative approach to developing solutions. If the Authority decides to progress its fast-track proposals we encourage the Authority to at least delay implementing the reliance limit until the next DPP.

23. In addition, the current timeframe for full reform will not provide sufficient time for the Authority and stakeholders to assess the impact of the fast-track proposal (i.e. it appears premature to contemplate full reform ahead of assessing whether the fast-track proposals achieve the Authority's desired outcomes.)

Vector's capital contributions policy has delivered significant Auckland growth while benefiting our consumers by minimising lines charges

24. We consider our 100% upfront capital contributions policy is in the best interests of our customers. Auckland has experienced significant growth in the past decade. Our capital contributions policy has been a key pillar in allowing us to fund necessary investment to support this growth. It has not loaded growth costs not caused by existing customers onto those customers, nor forced existing customers to both fund and underwrite the commercial business models of, for example, large (and at times speculative) property developers.

25. Without our capital contributions policy and assuming connection levels stay the same, our RAB growth and lines charges would have been significantly higher including:

- An increase in net capex of ~$140m over DPP4 (RY27 to RY30); and
- An extra $23m of revenues associated with financing and depreciation costs to be covered by all consumers over DPP4 (RY27 to RY30)[6]

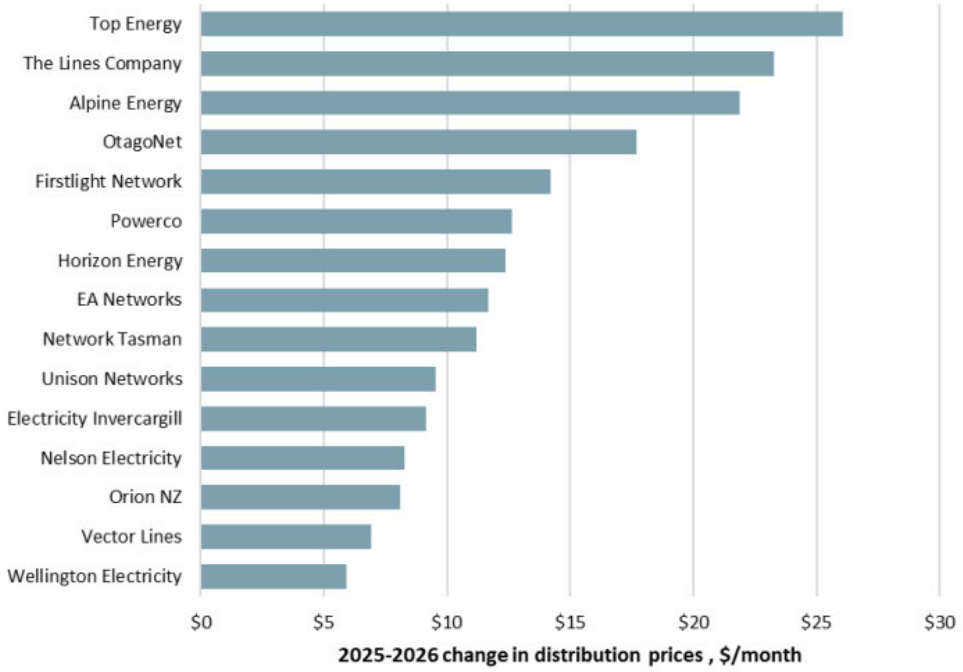
26. This is illustrated by the Commission's recent decision on DPP4. DPP4 will see increased consumer bills across all EDBs driven by higher interest rates (resulting from a higher WACC) and increased capex to support electrification.

27. Consumers on Vector's network face one of the lowest increase in bills from DPP3 to DPP4 due to Vector's capital contributions policy.

[6] Based on the following assumptions: 82% scaling of contributions from RY27 to RY30, DPP4 final capex inflator set, 2024 AMP.

28. The table below shows the Commission's estimate of the average increase in the monthly distribution component of a household's electricity bill from DPP3 to DPP4.[7] Vector is near the bottom of the bill increase table.

Figure 4.5 Estimated average increase in monthly distribution component of a household's electricity bill from DPP3 to DPP4



29. As the Authority itself recognises, moving away from this approach will lead to immediate customer bill increases.

30. We have considered the Authority's view that the additional connections driven by its proposals will ultimately lead to lower bills due to more customers overall. However, the Authority has provided no evidence or analysis as to why it believes this to be the case, how many more connections would occur (or are not occurring now) and to what extent those bills would be lower. For the most part, demand for connections is highly inelastic so we expect most connections would go ahead whether the contribution rate was 82% or 100%. We do note that the Authority has confirmed that for Vector that its proposals will increase bills for consumers.

Auckland's exponential growth means the operating environment is materially different to other parts of New Zealand

31. It is important to note that exponential growth, and materially higher costs, in Auckland means Vector's operating environment is significantly different from most other EDBs. Vector's capital contributions policy is consistent with (and in fact modelled upon) that

[7] Commerce Commission, *Default price-quality paths for electricity distribution businesses from 1 April 2025 – Final decision: Reasons Paper* (November 2024), figure 4.5

of other high-growth infrastructure providers in Auckland, including Watercare and Auckland Transport.

Potential for cross-subsidisation

32. We understand the Authority's intent is for connecting customers pay their own incremental costs along with a contribution to common costs. We support this intent.

33. However, we have significant concerns that the reliance limit and the indicated net incremental cost approach at full reform will result in existing customers subsidising connecting parties. This is because of the practical realities of connecting a significant numbers of connecting parties in a dynamic operating environment where –

    - The Authority's proposals will result in customers paying some costs up front and some through time; but
    - It is not possible to undertake a net incremental cost calculation for every single customer or individualise tariffs for every customer.

    Accordingly, mass market customers will ultimately end up washing up unrecovered or unallocated costs.

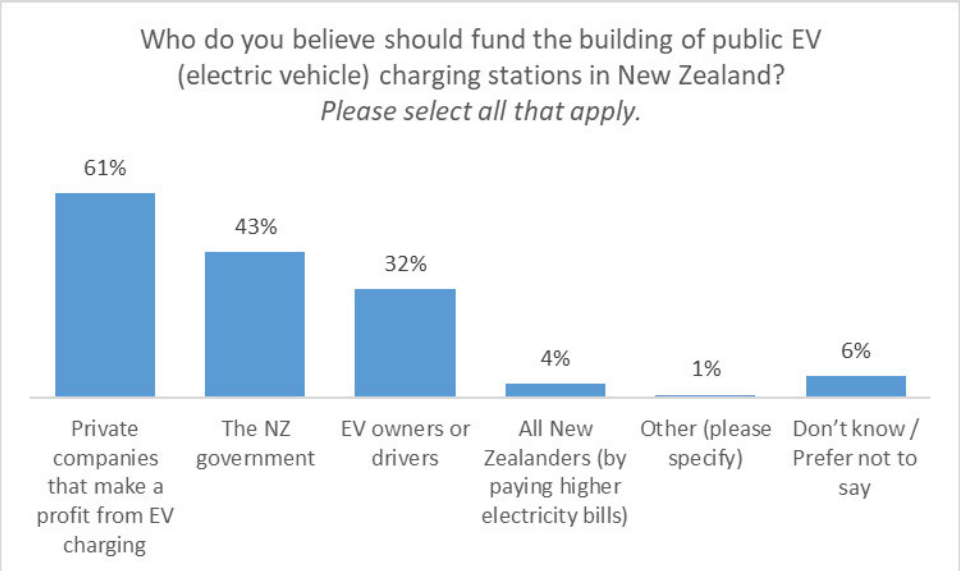
Customers do not support any cross-subsidisation

34. Our understanding is the Authority's proposals are driven by concerns from Charge Point Operators and a desire to see more of these connections.

35. We have undertaken customer research into who should pay for EV charging stations. We found:

- only 4% of New Zealanders aged 18+ believe New Zealanders should fund the building of public EV charging stations by paying higher electricity bills.
- 92% of New Zealanders aged 18+ consider a combination of private companies making a profit from EV charging, the NZ government and/or EV owners/drivers should fund these.

Figure one: customer survey results



NB: respondents could select more than one option so the results add up to more than 100%

36. We also note recent statements from Resource Management Act Reform Minister Chris Bishop that, "*the core principle of [housing and infrastructure development] is to make growth pay for growth*."[8]

37. We do not consider the proposals, which in practice are likely to result in existing customers subsidising new customers, support the long term benefit of consumers, nor current Government policy on how new infrastructure should be funded.

The Authority is straying into the Commerce Commission's jurisdiction and could well be acting ultra vires

38. Vector is concerned that the Authority is straying into matters that are within the exclusive jurisdictional remit of the Commission.

39. The Authority's consultation documents do not expressly address the limits of its jurisdiction to amend the Code in relation to prices under s 32 of the Electricity Industry Act 2010, or how the proposed consultation documents fall within those.

40. As we understand it, the Authority may amend the Code to regulate "pricing methodologies" for electricity distributors (s 32(4)(b)). However, it may not otherwise do or regulate anything that the Commerce Commission is authorised or required to regulate under Part 4 of the Commerce Act 1986 (s 32(2)(b)), including determining prices and/or revenues.

41. This point is captured by the Commission's letter to the Authority dated 11 November 2024, which provides the Commission's feedback under s 54V(1) of the Commerce Act.

42. The Commission notes that the proposed amendments to the Code "could have potentially significant impacts on price paths which apply to EDBs, both in terms of the proposed fast-track measures and the full reform", and "that for some customers in some areas this will result in increased prices, at least in the short term".

43. The Commission's letter importantly states that:

    We recognise the Electricity Industry Act 2010 specifies the following two exceptions to the prohibition under s 32(2)(b) of the Code purporting to do or regulate anything that we are authorised or required to do or regulate under Part 4:

    - *setting quality or information requirements for Transpower or 1 or more distributors, in relation to access to transmission or distribution networks; and*
    - *setting pricing methodologies for Transpower or 1 or more distributors.*

    We note that if one of the above exceptions does not apply, then s 32(2)(b) precludes any Code requirement that purports to do or regulate anything we are authorised or required to do or regulate under Part 4 – namely, regulating 'prices' (as defined in s 52C

[8] See the recent parliamentary debate on the Fast Track Approvals Bill 2024, available: https://www.parliament.nz/mi/pb/hansard-debates/rhr/combined/HansD_20241210_20241211

of the Commerce Act) or revenues from regulated services under Part 4. As you are aware, it is important therefore that any Code requirement can be characterised as a 'pricing methodology' (as defined in s 32(4) of the Electricity Industry Act), as opposed to regulating 'price', so that the exception under s 32(4)(b) will apply.[9]

44. The Authority's proposal to implement 'reliance limits' have the effect of changing the aggregate revenue (a component of 'prices') that Vector and other electricity distributors can obtain from connection prices charged to access seekers.

45. In these circumstances, we consider that it is important for the Authority to explain how these proposed reforms fall within matters that are properly regulated by the Code rather than by the Commission via DPP4 and the Input Methodologies.

46. More broadly, it is also important to note the Commission's point that the proposed Code amendments include "potentially significant impacts on price paths which apply to EDBs". The Commission further commented, in relation to the Authority's reliance on potential reopener mechanisms under Part 4, that:

    Setting and reconsideration of an EDB's price path, either via a customised price-quality path or the default price-quality path requires significant time and effort from the Commission and industry stakeholders.

47. That is in part because the Commission in setting the current IMs and DPP4 has made various assumptions as to the ability of EDBs such as Vector to recoup connection costs (or capital contributions) from access seekers.

48. We are concerned to note for example that certain aspects of the Authority's consultation appear to be directed at the incentives deliberately and carefully created by the Commission's Part 4 determinations: see for example the CEPA Report's section headed "EDBs face a mix of incentives, not all of which are clearly desirable".

49. Ultimately, Vector is concerned that the Authority's proposed Code amendments risk trespassing into the careful assessment of cost, revenue and incentive allocation completed over several years and culminating recently in the Commission's DPP4 determination.

50. We invite the Authority to clarify its position on the legal powers it relies on in passing the proposed Code changes.

Problem definition

51. We have submitted expert reports from Axiom Economics and HoustonKemp, both of which identified significant shortcomings in the Authority's problem definition.

52. Axiom Economics found the Authority had not established that there are significant problems that would be best addressed by the proposed reforms. Similarly, HoustonKemp found the problem definition, falls significantly short of establishing

[9] Letter from Vhari McWha to Sarah Gillies (11 November 2024) available: https://www.ea.govt.nz/documents/6063/Response_to_EA_s54V1__-_Proposed_amendments_connection_pricing_and_DG_application.pdf

grounds for material regulatory intervention by reference to the Authority's statutory objective.

The Authority has not presented empirical evidence of the problem

53. The Authority's analysis is entirely theoretical. It has not provided empirical data to support the contention that connection rates are being constrained to inefficiently low levels.

54. We note more connections are not necessarily desirable if these connections are not efficient. The pricing 'efficiency benchmark' the Authority sets out in its paper is (necessarily) imprecise and also incomplete. It is consequently difficult to say whether the majority of EDBs' connection prices are 'too high' (as appears to be the suggestion) and, in turn, whether the rates of connections are 'too low' (or 'too high').

Increasing connection charges are not necessarily problematic

55. The Authority is concerned that capital contributions are increasing, and in the case of Vector are projected to increase. However, this is not necessarily evidence of a problem (provided they are efficient). Many of the drivers of increasing capital contributions cited by the Authority appear to be legitimate reasons for an EDB to increase the contributions required upfront to avoid burdening consumers with higher lines charges.

56. Managing demand growth, managing financing costs (rather than increasing prices through higher debt), limiting year-on-year movement in consumer bills and managing connection volume risk are considered desirable outcomes under the Part 4 regime. Indeed, in the context of gas pipeline businesses, the Commission has stated it expects these businesses could *increase* capital contributions to manage connection volume risk in the context of asset stranding risk.[10]

57. The only driver cited by the Authority that doesn't appear to promote customer benefits under the Part 4 framework is the potential to obtain benefits under the regulatory incentives to underspend assumed capex. If this issue was occurring in practice, it would be visible in the expenditure and contribution data, and would be appropriately dealt with by the Commission who have recently considered efficiency incentives at length both as part of the Input Methodologies Review and the DPP4 process.

58. Furthermore, the available evidence suggests that EDBs are not using capital contributions to obtain benefits under the incentive regime. This is set out in more detail below. The Authority's consultation paper and the supporting report from CEPA does not provide any evidence to the contrary, only conjecture. Moreover, the paper suggests Vector may benefit from the projected increase in contribution rate (reflected in our 2024 AMP). However, the Commission's DPP4 decision uses the same projection to set our expenditure allowances, which means that we would only benefit if our actual contribution rate were higher (all else held constant) than that projected.

[10] For example, see Commerce Commission, Default price-quality paths for gas pipeline businesses from 1 October 2022 (May 2022) at 6.58

The theoretical issues appear to relate to the incentive properties of the Commission's Part 4 framework

59. A key concern driving the Authority's proposals appears to be the potential incentive for EDBs to obtain benefits under the Commerce Commission's incentive framework (i.e. through the incremental rolling incentive scheme or "IRIS").

60. It is worth noting the Commission carefully monitors the performance of Part 4 regulation and recently found, "*Local lines companies have been effectively limited in their ability to earn excessive profits*."[11] If connection rates were being unduly stifled due to the incentive properties of the Part 4 framework, it is unclear why radical pricing reforms by the Authority would represent the best solution. Rather, best regulatory practice might suggest that the Authority should encourage the Commission to address any issues with the Part 4 regime (e.g. by amending how the capital expenditure IRIS works) rather than independently attempt to instigate a complicated and novel framework as a means to address a perceived problem that it believes a fellow regulator has failed to address.

61. We consider it unlikely that EDBs are gaming the incentive framework in the way suggested by the Authority (and its consultant CEPA):

- The practical realities of connecting a large number of customers would make this extremely difficult in practice;

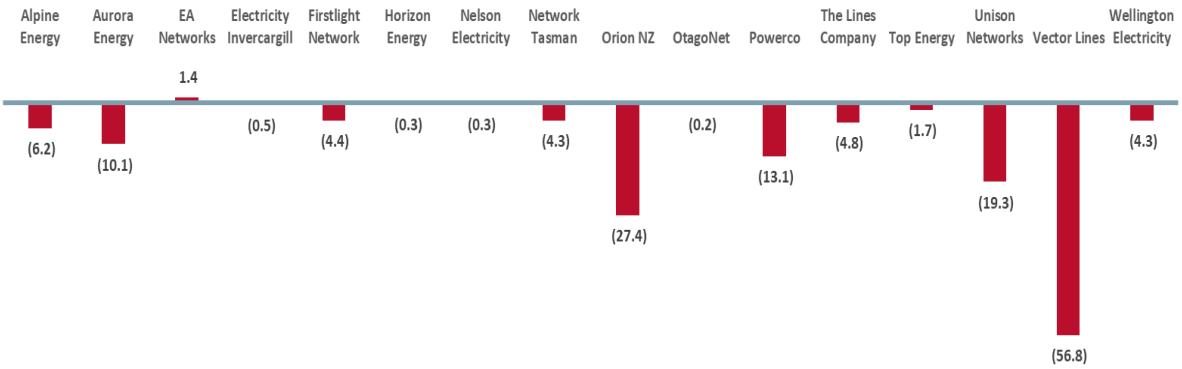
- The available evidence does not support this theoretical problem. The trend in DPP2 (2015-2020) and DPP3 (2020-2025) periods has been for EDBs to be penalised under IRIS suggesting EDBs have not been using capital contributions to obtain benefits under the incentive regime. This appears to be a reality that the Authority has failed to take into account in its theoretical problem definition hypothesis.

62. The last point can be seen in Figure Two below, which shows the capital expenditure IRIS incentive amounts allowed by the Commerce Commission in its DDP3 and DPP4 decisions for the non-exempt EDBs. Most EDBs, including Vector, received negative incentive amounts (i.e., penalties) resulting from the operation of that scheme. If EDBs were, as the Authority suggests, benefiting from increasing contribution rates, we would expect to see positive incentive amounts across EDBs and time periods.

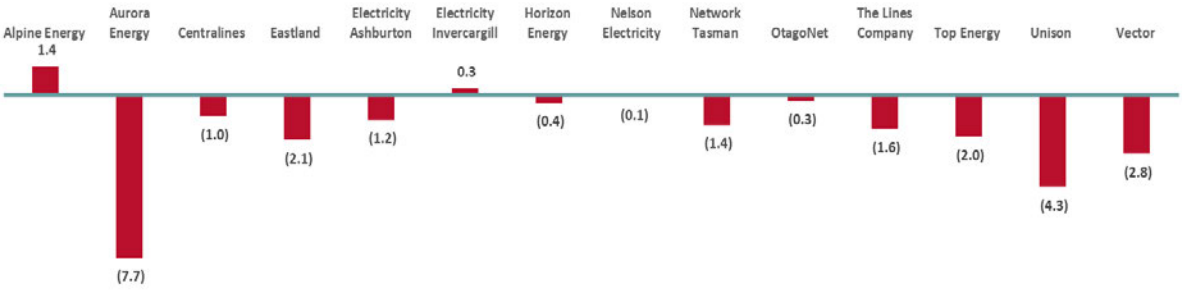
63. If the Authority remains concerned about potential incentive concerns, then we encourage it to engage with the Commission which is clearly tasked under legislation with monitoring and incentivising expenditure efficiency. Importantly, the Commission did not identify concerns with contribution rate incentives in its recent DPP and Input Methodology determinations.

Figure Two: Capital expenditure IRIS incentive amounts (negative = penalty, positive = reward)
Panel A. Incentive amounts in DPP4 decision based expenditure over the DPP3 period ($Million, $2025, end year).

[11] Commerce Commission, *Trends in local lines company performance* (June 2024)



Panel B. Incentive amounts in DPP3 decision based expenditure over the DPP2 period ($Million, $2020, end year)



The Authority's welfare calculus is incomplete

64. The Authority's welfare calculus does not sufficiently consider allocative efficiency. As acknowledged by CEPA, higher up-front capital contributions mean lower use-of-system charges. Those lower ongoing prices will have resulted in a static efficiency *improvement* in the form of higher usage by existing connected customers but appears to have been overlooked by the Authority.

65. As explained in Axiom's expert report, the existence of the potential trade-off between attaining greater levels of allocative efficiency and greater levels of dynamic efficiency is widely recognised. Such trade-offs are particularly significant when it comes to decisions about the pricing of services provided by long-lived infrastructure assets. It is consequently surprising that CEPA has neither acknowledged nor accounted for this well understood feature of regulatory pricing.

66. Instead, CEPA has assumed (implicitly) that the welfare gain obtained through lower use-of-system charges is *zero.* This is clearly not the case and represents a key omission in the Authority's analysis (i.e. even in principle it has not been demonstrated that increased capital contributions have adversely impacted efficiency).

The Authority's approach is not good regulatory practice

67. The Ministry of Regulation's expectations for good regulatory practice explains that:

"The government believes that durable outcomes of real value to New Zealanders are more likely when a regulatory system

- *has clear objectives*
- *seeks to achieve those objectives in a least cost way, and with the least adverse impact on market competition, property rights, and individual autonomy and responsibility*

- *is flexible enough to allow regulators to adapt their regulatory approach to the attitudes and needs of different regulated parties, and to allow those parties to adopt efficient or innovative approaches to meeting their regulatory obligations*
- *has processes that produce predictable and consistent outcomes for regulated parties across time and place*
- *is proportionate, fair and equitable in the way it treats regulated parties*
- *is consistent with relevant international standards and practices to maximise the benefits from trade and from cross border flows of people, capital and ideas (except when this would compromise important domestic objectives and values)*
- *is well-aligned with existing requirements in related or supporting regulatory systems through minimising unintended gaps or overlaps and inconsistent or duplicative requirements*
- *conforms to established legal and constitutional principles and supports compliance with New Zealand's international and Treaty of Waitangi obligations*
- *sets out legal obligations and regulator expectations and practices in ways that are easy to find, easy to navigate, and clear and easy to understand, and*
- *has scope to evolve in response to changing circumstances or new information on the regulatory system's performance."*[12]

68. The current proposals do not fulfil a number of these elements. As discussed above, shortcomings with the problem definition mean the proposals cannot be said to have "clear objectives", nor does the proposal "seek to achieve those objectives in the least cost way" given the rushed move to pricing reform rather than investigating a more targeted solution or exploring the ability to better address any perceived problem through more targeted Commerce Commission regulation.

69. It also removes flexibility and does not "recognise the value of a regulatory approach that adapts "to the attitudes and needs of different regulated parties, and to allow those parties to adopt efficient or innovative approaches to meeting their regulatory obligations."

70. It is also not "well-aligned with existing requirements in related or supporting regulatory systems." In particular, as we expand further below, it is not consistent with the approach taken to transmission connection pricing or the process for developing the transmission pricing methodology (TPM).

Comparison with TPM

71. The Authority has not provided any explanation of the extent to which it has relied on transmission precedent for connection pricing, if at all, or the reasons for adopting a different approach.

72. It is curious no reference at all is made to TPM despite the funded-asset mechanism Transpower developed for First Mover Disadvantage being very similar to the "Pioneer scheme pricing methodology requirements" the Authority is now proposing.[13]

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[12] Government expectations for good regulatory practice (April 2017), available: https://www.regulation.govt.nz/assets/Uploads/Government-Expectations-for-Good-Regulatory-Practice.pdf

[13] The only reference is limited to CEPA's commentary that "[FMD] issues were recently addressed by the NZEA in its review of the Transmission Pricing Methodology." CEPA, *Regulation of distribution connection charges in New Zealand*, (October 2024).

73. Comparing the connection pricing proposals with that of Transpower gives rise to the following concerns:

    - The TPM Guidelines do not impose restrictions on, or limit capital contributions/recovery of, upfront costs for Transpower. In contrast, the Authority proposes to cap capital contributions for distribution.

    - Unlike the Authority's reliance limit, which will require the price-paths for EDBs such as Vector to be re-opened, the Authority did not interfere with Transpower's IPP when implementing TPM. The IPP was in effect treated as sacrosanct[14] - an outcome more logical when you consider the jurisdictional interface between "pricing methodologies" (Authority) and pricing/revenue (Commission).

74. It undermines regulatory certainty and confidence in the regime where the regulator provides no clear reasons for taking a different approach to transmission and distribution services, especially after the extensive multi-year process followed to develop the TPM.

75. We are unclear why the Authority continues to recognise the value of flexibility in connection charges for Transpower but intends to so radically depart from this approach for EDBs.

76. Different treatment between Transpower and EDBs (both in this consultation and the *network connections consultation – stage one* consultation) could lead to inefficient outcomes. In particular, it may lead parties to inefficiently connect to the distributor rather than Transpower due to –

    - Lower connection costs regardless of whether this is efficient or inefficient. This could arise either because, at full reform, distributors are limited to the net incremental cost approach and Transpower is not; or if reaching the reliance limit prevents distributors from further charging capital contributions to fund growth.

    - That connecting parties can fall back on the prescribed terms when dealing with distributors (as proposed in the *Network Connections – Stage One proposals)*, but must negotiate with Transpower.

Comparison with other regulated services

77. It is also worth noting other regulated sectors retain flexibility in their connection pricing. As described above, Transpower retains flexibility in connection pricing.

[14] The Authority – supported by Transpower – did request the ommission re-open the IPP, but only so Transpower could recover the cost of the new TPM

78. This is also the case for Fibre and Gas Pipeline Businesses (GPBs). Indeed, in the last DPP reset the Commission noted its expectation that GPBs might increase their capital contribution rate in the context of asset stranding risk.[15]

79. We consider there should be a higher regulatory hurdle to impose regulation that does not exist in other comparable services.

Moving rapidly from flexibility to highly prescriptive regulation undermines confidence in the regulatory framework

80. The Authority's guidance about its expectations in relation to distribution connection charges and use of capital contributions, prior to the release of its latest consultation paper, has been limited. The Authority has bypassed providing distributors with an opportunity to meet its expectations about treatment of new connections before deciding to regulate.

81. Instead the Authority has gone from:
    - adopting distribution pricing principles that say nothing explicitly about connection charges/capital contributions; to
    - to a letter of expectations in 2022 which briefly references FMD; to
    - scorecards in 2023 which provide minimal (conflicting) guidance about what would be acceptable; to now
    - issuing proposed mandatory Code requirements for connection charge pricing methodologies.

82. It undermines confidence where regulation rapidly moves from a light-handed approach to extensive prescription.

Reliance limit

83. The Authority's proposed reliance limit is not supported by economic or pricing theory – a point our expert reports fully address. If prices are efficient, which is the intention of the Authority's reform, a further and separate overarching aggregate limit has no logic. We also consider imposing the reliance limit is likely to result in customer harm.

84. As recognised by the Commission in setting DPP4, EDBs have significant upcoming capex requirements to meet the electrification demands of the energy transition. This investment may be compromised and artificially constrained by the introduction of an arbitrary reliance limit and which, in sharp contrast to the approach of the Commission, is determined through *historic* charging practices rather than forward-looking network upgrade investment requirements.

[15] For example, see Commerce Commission, Default price-quality paths for gas pipeline businesses from 1 October 2022 (May 2022) at 6.58

The Authority has not provided adequate justification for introducing the reliance limit

85. The Authority states it has imposed the reliance limit for the following reasons:

    "*without limits on changes to reliance on capital contributions, the fast track measures do not prevent distributors from continuing the historical trend of increasing connection charges.*

    We expect the drivers that contribute to this trend will continue in the foreseeable future. These drivers include:

    (a) growing capital expenditure programmes, including due to connection growth, organic (demand per connection) growth, and asset renewal cycles

    (b) elevated real and nominal financing costs

    (c) revenue paths profiled to limit year-on-year movement in consumer bills

    (d) regulatory incentives to under-spend assumed capital expenditure envelopes

    (e) exposure to connection volume risk

    The Authority therefore considers the risk remains that distributors will manage pressures on their businesses by inefficiently increasing connection charges. To mitigate this risk, we propose a further fast-track pricing methodology, referred to as reliance limits, in cases where reliance on up-front contributions is already high."[16]

86. The Authority is concerned that capital contributions are increasing, however, in and of itself this is not necessarily evidence of a problem. It is equally plausible that increasing contributions reflect a trend towards more efficient contribution levels. The drivers of increasing capital contributions cited by the Authority appear legitimate reasons for an EDB to increase the "user-pays" contributions required upfront to avoid burdening consumers with higher lines charges.

87. Managing demand growth, managing financing costs (rather than increasing prices through higher debt), limiting year-on-year movement in consumer bills and managing connection volume risk are considered desirable outcomes under the Commission's Part 4 regime. Indeed, in the separate context of regulated gas pipeline businesses, the Commission has stated it expects these businesses would *increase* capital contributions, for example, to manage connection volume risk in the context of increased risk of asset stranding.[17] Inconsistency as between regulators further undermines regulatory confidence and predictability at a particularly important time in the energy transition to electrification.

88. The only driver cited by the Authority that doesn't appear to promote customer benefits under the Commission's Part 4 framework is the potential to obtain benefits under the

[16] Electricity Authority, *Distribution connection pricing proposed code amendment* (25 October 2024) at 7.80 – 7.82

[17] For example, see Commerce Commission, Default price-quality paths for gas pipeline businesses from 1 October 2022 (May 2022) at 6.58

regulatory incentives to underspend assumed capex. While the Authority did not even attempt to analyse such IRIS incentive outcomes as part of its proposals, as we highlight above the evidence from both DPP3 and DPP4 periods strongly suggests this is not the case and, in any event, it would be appropriately dealt with by the Commission if it was occurring. We discussed this in more detail in our response to the problem definition above.

89. We also note the proposed reliance limits, based simplistically on the past 4 years, are entirely arbitrary. The Authority has not presented any evidence why the specific levels (e.g. 82% for Vector) would support efficiency, any more so than any other number.

The reliance limits are likely to result in customer harm

86. Even if the Commission re-opens the price-path following the Authority's fast-track Code amendments, the practical implications of managing capex growth under the reliance limit could undermine necessary investment. An EDBs measured reliance (i.e. ratio of contributions to growth capex) will be affected by a range of factors that can't be influenced by connections policy (e.g. system growth investment not related to new connections and the timing of receiving the capital contributions versus incurring actual capex). This will be very difficult for the distributor to manage and is likely to result in perverse outcomes through driving conservative and constrained non-connections investment profiles with consequential impact on the wider economy's ambitions to electrify.

87. We are concerned the reliance limits will result in existing customers cross-subsidising connecting customers. To the extent the additional growth capex cannot be wedged to the access seeker would have to be included in the RAB requiring all existing customers to cover the cost through higher lines charges. The only way to avoid customer bill impacts would be to delay important network investment upgrades which could constrain the ability to connect further access seekers and/or delay wider economy ambitions to electrify.

88. We note that it is uncertain how compliance with the reliance limit will be assessed or enforced. The proposed Code amendment requires distributors to use "best endeavours to ensure the policy or methodology (or schedule) is unlikely to result in its capital contribution reliance for load exceeding its capital contribution reliance limit for load."

89. If the Authority progresses the proposal we would welcome more guidance on how this will work in practice.

The proposal has been introduced too rashly

90. We do not consider it good regulatory practice for the Authority to rush through such a significant change and we are concerned the potential adverse and unintended consequences have not been sufficiently considered. We are not aware of any regulatory precedent for the reliance limit which further increases our concern about the rushed nature of the change. This contrasts with the Authority's approach in relation to the net incremental cost (i.e. starting with disclosure obligations only) despite this proposal having regulatory precedent to draw from.

Our concern about the reconciliation methodology relate to full reform

91. The proposals in the fast-track reform, including the net incremental cost approach required in the reconciliation methodology, generally relate to information disclosure.

92. We have significant concerns about the potential for the reconciliation pricing methodology to become a requirement for connection pricing at full reform. We consider distributors should retain flexibility in how they charge for connections to ensure they can meet customer and network needs. Providing a connection price is efficient, an EDB should be left to determine the level of upfront pricing and through-time pricing.

93. As explained in the HoustonKemp report there are sound economic reasons why different efficient prices might be determined for different customers. Historically our capital contributions policy has benefitted Auckland consumers by funding significant growth and not implicitly forcing electricity consumers to underwrite speculative commercial ventures such as housing developments, public EV charging stations and data centres, while minimising customer bills.

94. Furthermore, as currently drafted, we are concerned that if the reconciliation approach is adopted for full reform price setting this could compromise the interests of existing customers, particularly households, for the benefit of new connections.

Efficient prices and customer equity

95. We consider the Authority's proposals could be in direct conflict with its additional statutory objective "*to protect the interest of domestic consumers and small business consumers in relation to the supply of electricity to those consumers"* by privileging new connecting customers over existing customers.

96. Our understanding is full reform would require total connection charges to fall between the 'neutral point' (where the combination of connection charges and ongoing distribution charges is equal to the net incremental cost of the connection) and 'balance point' (where the network costs recovered from a connection applicant over the life of their connection is similar to that from other customers within the same consumer group). The Authority suggests connection charges within this range would likely be efficient. The Authority does not explain why prices above the balance point but below the bypass point are not also efficient. It would appear the Authority, by setting the ceiling at the balance point, is more concerned with equity as opposed to efficiency, despite equity not being a stated (nor statutory) objective of the Authority as a reason to underpin its regulation of connection pricing.

97. HoustonKemp's report found there is no sound economic basis for the Authority's conclusion that prices between the 'neutral point' and 'balance point' are likely efficient. It also found no economic basis for any general conclusion that prices above or below a 'balance point' are more or less efficient than the other, let alone inefficient or efficient.

What are efficient prices?

98. HoustonKemp and Axiom Economics set out the meaning of efficient pricing.

99. HoustonKemp's report notes that the Authority's connection pricing framework is ostensibly (although not in substance) focussed on efficient connection, which is most closely related to allocative efficiency. Allocative efficiency is promoted where prices are set –

- At least equal to the incremental cost of providing a connection service to the customer; and
- No more than the opportunity cost of the connection service to a customer, whether through bypassing the connection service, obtaining an alternative source of energy or ceasing its economic activity.

100. Prices within this range can be considered efficient.

Potential harm for existing customers if distributors are required to price based on the reliance limits methodology at full reform

101. The Authority's approach appears driven by concerns over equity between existing and new customers rather than economic efficiency. However, in practice, the proposals risk creating further inequity by treating new customers preferentially:

- It will inevitably result in costs being wash-up between customers that don't have a bespoke tariff (i.e. mass-market customers including households).
- The Authority proposes to defer recovery of some of the incremental cost of connection. This exposes existing customers to the risk that the new customer disconnects before they have paid the incremental cost, leaving those costs to be recovered from the existing customer base.
- This risk is particularly acute in the context of connection applicants providing new services where there is uncertainty around optimal locations, commercial models, technology and customer preference and demand.
- The recent announcement that Solar Zero, owned by multi-national investor BlackRock, is in liquidation demonstrates this is a live issue in New Zealand.

102. We have expanded on this point in our discussion on the connection charge reconciliation pricing methodology. The economic reports by Axiom Economics and HoustonKemp also provide further detail on why this is a significant concern.

Connection charge reconciliation pricing methodology

103. We understand (and support) that the Authority intends that connecting parties should pay their incremental costs. However, we are concerned that this will not be achievable in practice and instead will result in cross-subsidisation if mandated at full reform given distributors cannot charge an individual tariff for every customer.

104. We have set out further concerns below.

The indicated approach for full reform bundles connection and distribution services together resulting in pricing below the incremental cost of connection services

105. The Authority's approach to efficient pricing through the lens of the neutral point results in its lower bound for connection charges being below the incremental cost of connection services.

106. This is because the Authority's approach to the neutral point bundles distribution and connection services together. The neutral point is based on incremental connection costs, less the present value of expected future distribution revenues (with expected future distribution revenues reduced by 10 per cent to reflect the concept that new connections drive incremental maintenance expenditure).

107. HoustonKemp's report explains this has significant implications for the pricing of connection services and competition for connection services.

108. EDBs earn regulated distribution service revenue that is higher than their incremental cost reflecting the need to earn a return on and return of the regulatory asset base.

109. Accordingly, bundling these two services in the Authority's definition of the neutral point causes it to be materially *below* the incremental cost of providing the connection service. As revenue from distribution services exceeds the incremental costs of distribution services, the revenue from connection services can be commensurately below the costs of connection services when pricing at the neutral point.

110. When these incremental costs are almost entirely incurred as upfront payments, it does result in a substantial transfer of risk from connection applicants to existing users of the distribution network.

The indicated approach for full reform transfers risk to existing consumers

111. Axiom Economics and HoustonKemp both highlight concerns that the Authority's proposed approach, if required at full reform, in practice may disadvantage existing customers on the network.

112. We understand the Authority's intent at full reform is to require distributors to net off the 'incremental revenue' that an EDB is forecast to receive via ongoing payments for use of the network. The Authority proposes a connection revenue life of 30 years for residential connections and 15 years for other connections.

113. This profile of recovery transfers risk from connecting parties to existing customers. If the connecting party exits before the assumes connection revenue life then:

- The revenues collected from the connecting party may not be sufficient to return the residual part of the upfront cost that it did not pay for in its upfront connection charges;
- Any unrecovered costs would either be borne by the distributor, or socialised and recovered from other users through higher distribution charges.

114. This transfer of risk would reflect charges that are inefficiently low. It amounts in substance to a form of unsecured capital funding, similar to debt, provided by customers of the distribution network. It mitigates the upfront capital investment that shareholders must provide, in return for ongoing payments over 15 years, with these payments assessed at the regulatory rate of return.

115. However, the risk faced by such connection applicants is likely to be much greater than the risks that are compensated for by the regulatory rate of return. It is very unlikely connection applicants in a competitive market could source debt funding at the regulatory rate of return.

116. Accordingly, the proposed approach could give rise to the following inefficiencies:

- Inefficient connection decision-making by connection applicants, who may decide to connect when it is not efficient for them to do so, because connection pricing below the incremental connection cost artificially lowers their risk profile; and, associated with this,
- Inefficient business decision-making by connection applicants, who may proceed with an investment that delivers profits only because of the transfer of risk onto distributors and other electricity customers.

117. The Australian framework addresses this risk through its application of the cost-revenue test.

118. The proposed Code amendment (for the fast-track reform) allows distributors to use a shorter revenue life if the distributor reasonably believes the connection will have a shorter revenue generating life. Assuming a similar Code amendment is adopted at full reform, we would welcome clarification whether this allows distributors to impose a much shorter revenue life to riskier connections that the distributor assesses have a greater risk of exiting early (e.g. due to going out of business).

119. However, we note, even if this is permitted at full reform, this may be difficult for distributors to assess and it may result in dispute by connecting parties. Accordingly, it may not offer sufficient protection for existing customers.

120. The Authority's intent is to lower connection charges to see a greater level of connections, including riskier connections with less robust business cases. This will amplify the risk existing customers will be required to cover the costs of connections that exit early.

121. We do not consider exposing existing consumers to this risk can be justified. The recent liquidation of Solar Zero provides a clear example of the potential risk to existing customers of relying on recovery of costs over a 15 – 30 year timeframe.

122. We note in the Australian NEM, EDBs can manage the risk for existing customers by requiring a security fee that involves upfront payment or a financial guarantee from a connection applicant.

123. If the Authority progresses its proposals, we recommend the Authority make it explicit that EDBs can impose similar security schemes to ensure existing customers are not left on the hook for connections that exit early and that EDBs have strong discretion to shorten the expected revenue life for riskier businesses.

124. We also recommend that the EDB be able to reassess contributions over time (e.g. to reflect actual demand) and require an additional contribution if needed. This would be necessary if the security guarantee is time limited.

The Authority's proposals cost could inhibit competition for connections

125. Contrary to the Authority's statutory objective to promote competition in the electricity industry, the proposals would have the effect of locking in a bundle of connection and distribution services. This would inhibit competition in the market for contestable connection services.

126. As described on page 27], the Authority's approach results in pricing below the incremental cost of connections.

127. Pricing connection services at less than incremental cost, where these costs are largely upfront payments, will effectively eliminate the potential for competition in connection services.

128. The Authority has acknowledged potential competition impacts in some circumstances. The Authority stated that:

"…*connection works that include vested assets are more likely to result in a negative connection charge – ie, where the incremental revenue exceeds the incremental cost and contribution to network costs. To support contestability in such cases, distributors should make a payment to the applicant (or their contractor).*"[18]

129. HoustonKemp's report explains competition could be harmed in a wider range of circumstances than contemplated by the Authority. It does not require a negative connection charge to raise barriers to competition – only for the connection charge to fall below incremental costs, being those that are achievable by a third-party service provider.

130. The Authority has suggested distributors make a payment to the applicant or their contractor to mitigate competition impacts. We are unclear if this is a fundamental component of full reform or how this would work in practice.

131. We are also concerned about the potential legal risk distributors could be exposed to if the Code effectively forces them to undercut competitors for connections.

Interaction between the reliance limit and net incremental cost approach

132. As explained above, we consider that both the reliance limit and the proposed net incremental cost approach are flawed. If the Authority proceeds with these reforms it needs to consider how it would implement them in concert with the net incremental cost approach proposed in the reconciliation methodology.

133. If the Authority's problem definition is correct and its proposed solution results in 'efficient capital contributions', it is unclear what purpose the reliance limit serves.

134. That is, if the Authority's proposals result in capital contributions set at 'efficient levels', why would an additional limit on the overall proportion of costs recovered through capital contributions be necessary?

135. A simple example can explain why the two proposals should not co-exist. The Authority's reconciliation formula is CC=IC-IR+NC where CC is connection charge, IC is incremental cost, IR is incremental revenue, and NC is network costs. Assume a EDB has a reliance limit of 80% and a new connection cost $100. Then in the above formula IC must equal $100 and therefore CC must equal $80 (if the reliance limit is applied), therefore the net of IR and NC must be $20. But what if actually the net of IR and NC is not $20? The Authority addresses this by making NC the balancing figure

[18] Electricity Authority, *Distribution connection pricing proposed code amendment: consultation paper* (October 2024) page 69

i.e., it does not represent the actual network costs the connection should be contributing to.

136. Our understanding is the Authority's intent would be to remove the reliance limit at full reform once the net incremental cost becomes binding. We agree this would be necessary to avoid compromising the net incremental cost formula. Given the interaction between the two, imposing both measures at fast-track causes confusion and supports the need to remove the reliance limit as a feature of the fast-track proposals.

Elements of the reconciliation methodology are unclear

137. Another concern regarding the reconciliation proposed if it becomes the basis for full reform is that the inputs are not well designed, defined or explained. For example:

- We are unclear how the net incremental cost approach would work where the party paying the upfront contribution is different to the party paying through time (e.g. in the case of a housing development).
- Incremental cost appears to only include capital expenditure of the connection assets and network capacity cost but what about other incremental costs?
- The network cost contribution has no bearing on what network costs should be contributed to as it is in the code changes merely a reconciling figure.
- The incremental revenue makes no allowance that it is revenue related to the distribution service (not the connection service) and will always be larger than the costs of the distribution service as it includes a return allowance.
- It is uncertain how suppliers should interpret elements of the proposed net incremental cost approach is uncertain. For example, "incremental revenue" could mean:
    - Revenue that results from the connection that would otherwise not be realised and would otherwise not be washed up in the aggregate under the Part 4 regime;
    - Revenue added at an aggregate level considering the Part 4 regime;
    - Revenue associated with a consumer after considering the impact their contributions have on the RAB.
- We are unclear why the discount rate uses a 5-year WACC for a 30-year cashflow.
- The reconciliation approach assumes that a distribution price exists when setting the upfront contribution amount but does not consider that a bespoke distribution price may be determined for the connection driven by the level of contribution and therefore level of investment required. Recognising that this creates a circular reference. Several important items that impact price are missing because they do not pertain to cost: e.g. IRIS impacts
- Network costs under full reform should not be a balancing figure in the equation and be determined for each connection. This would be complex to do and require allocation models to be designed and implemented.
- The assumption that maintenance opex is 10% of revenue from prices is extremely broad-brush and simplistic and unlikely to be accurate in many instances.

Overseas jurisdictions

138. The Authority notes it has developed its proposals with reference to overseas jurisdictions, in particular, Australia's connection rules and the United Kingdom's Common Charging Connection Methodology.

139. Both Australia and the UK have a single regulator responsible for both pricing methodologies and regulating prices so the overlapping and conflicting jurisdictional issues do not arise and the risk of connection rules undermining the regulated price-path and incentive regulation is limited.

140. The Authority states it has not attempted to replicate either the UK or Australian approach. However – based on the aspects that have been replicated from the Australian framework – key nuances have been missed.

141. The consultation paper summarises the Australian approach as, "*connectors pay incremental cost net of incremental revenue.*"[19] However, this is only the case in the NEM, and only applied to connection services offered by a particular distributor that are classified as standard control services.

142. HoustonKemp's report explains in more detail important aspects of the Australian regime that appear to have been overlooked by the Authority. In particular:

- There is significant diversity in connection pricing across Australia, including as between the NEM and Western Australia, between states within the NEM (eg, which have different frameworks for contestable connection services), and between individual EDBs, that reflect different classifications of connection services between EDBs and the degree of discretion available to EDBs under the AER's connection guidelines. For example:
    - For contestable connection services, the incremental cost is recovered upfront in its entirety (e.g. In NSW most connection services are contestable and therefore paid upfront in their entirety by the connecting party to an accredited third party);
    - The incremental cost-revenue test in Australia applies only to connection services classified as *standard connection services*. This was not identified by the Authority in its reference to Australian practice but is an important distinction which appears to have been overlooked.
- Furthermore, it does not apply to all connections classified as standard connection services. For instance, most small connections are subject to a fixed connection charge, rather than charge calculated using the incremental cost-revenue test.

[19] Electricity Authority, *Distribution connection pricing proposed code amendment: consultation paper* (October 2024), page 31

- E.g. A granular example is Energex in Queensland for which the same connection service is classified differently (i.e. as a standard or alternative control which has implications for connection charges) depending on whether the customer is a small customer (standard control) or large (alternative control); or the likelihood the asset will be used by other customers (standard control) or won't be used by other customers (alternative control).

- If shared network costs and/or operating and maintenance costs are excluded from the cost side of the incremental cost-revenue test, the AER requires they be excluded from the calculation of incremental revenue.

Alternative approaches to achieve the Authority's objectives

143. Our understanding is the Authority's proposals are driven by concerns from CPOs and the Government's communicated desire to facilitate more connection of EV charging stations in line with current government policy.[20] These businesses have specific features (e.g. level of risk and uncertainty around customer demand) that distinguish them from other types of connections.

144. If this is the case, it does not make sense for the Authority to pursue wide ranging and far-reaching pricing reform for the benefit of a narrow single class of customers. The Authority should instead consider more targeted regulation (or, more appropriately, recommend the Commission pursue more targeted regulation) to facilitate and incentivise these particular connections.

145. We also recommend the Authority consider the alternative reform options that could better address the concerns underpinning the Authority's reform set out in HoustonKemp's report.

146. HoustonKemp recommends the following approaches to support large-scale electrification projects without causing the issues identified with the current proposals (e.g. transferring risk from existing customers to new customers):

- **Supporting electrification**: Providing targeted, lower ongoing distribution tariffs to support electrification projects;

- **Supporting competition:** The Authority's statutory objective is to promote competition, including in the provision of connection services. This would be best served by pursuing options that place distributors and third party connection services on an equal footing when bidding for connection projects. This could be achieved by:

    - requiring distributors to recover the cost of contestable connection services (which might exclude certain services, e.g., shared network augmentations) upfront in their entirety, consistent with the framework for contestable connection services in New South Wales

[20] 2023/2024 Letter of Expectations for the Electricity Authority, available: https://www.ea.govt.nz/documents/2686/Letter_of_expectations_2023_24.pdf

- This would also address the Authority's concern that distributors face a lack of incentives to constrain connection costs to efficient costs only.

- **Improve economic efficiency:** One theme of the Authority's problem definition is the potential for the regulatory framework for distribution services to not provide appropriate incentives for distributors to facilitate efficient connections. If this concern were to be substantiated, regulatory best practice would be to amend those elements of the regulatory framework from which the distortion or lack of incentives arise e.g. by encouraging the Commission to amend the IMs to ensure net capital expenditure is unaffected by increases in connection charges.

Yours sincerely,

Richard Sharp

GM Economic Regulation and Pricing

Appendix A Format for submissions

Submitter	Vector

Questions	Comments
Q1. Do you agree with the assessment of the current situation and context for connection pricing? What if any other significant factors should the Authority be considering?	No. As discussed on pages 16-22 and expert reports from Axiom Economics and HoustonKemp, the Authority has not established any significant problems that would be best addressed by the proposed reforms. The potential issues identified by the Authority are not supported by empirical evidence. The Authority does not appear to have sufficiently considered – • The practical realities of managing connections or any empirical evidence about the problem; • The major impact on, and undermining of, the Commission's regulatory framework; • Differences between distribution and transmission pricing, including that transmission connection pricing is not prescriptive and the TPM treated Transpower's price-path as relatively sacrosanct; • The potential impact on competition for contestable connections; • The nuances of the Australian and UK regimes that the Authority drew on for its proposals; • The administrative and other costs imposed by the proposals; • The negative price impact for existing customers imposed by the reliance limit.
Q2. Do you agree with the problem statement for connection pricing?	No. The problems identified by the Authority are not supported by any empirical evidence and largely relate to theoretical issues with the Commission's regime. If they were occurring, this would suggest an issue with the Commission's incentive regime that should be addressed by the Commission, not a separate regulator. See discussion on pages 16-22 and reports from Axiom Economics and HoustonKemp.
Q3. Do you have any comments on the Authority's proposed pathway to full reform?	The timing for full reform appears unmanageable and overly rushed. It could result in Vector (and potentially other EDBs) requiring two re-openers in a single DPP period.

	If the Authority implements the proposed fast-track measures, we recommend it delay full reform until it has had a chance to assess whether they are delivering the outcomes it intends. It does not make sense to pursue full reform before it has had a chance to reflect on the impact of the fast-track measures.
Q4. Do you consider the proposed connection enhancement cost requirements would improve connection pricing efficiency and deliver a net benefit?	The Authority should ensure distributors retain flexibility around non-firm connections to avoid potential negative customer outcomes, for example if a lower security standard is agreed with a customer who then sells the site to a third party. We were pleased to see the Authority's minimum flexible scheme appears to recognise the value of flexible and manageable network access to reduce capex. See HoustonKemp's report (at A1.1) on the efficiency implications of the proposed connection enhancement cost requirement.
Q5. Are there variations to the proposed connection enhancement cost requirements you consider would materially improve the proposed Code amendment?	See response to Q4.
Q6. Do you consider the proposed network capacity costing requirements would improve connection pricing efficiency and deliver a net benefit?	See HoustonKemp's report on the efficiency implications of the network capacity costing requirements (at A1.2) If the proposal is implemented, we support the ability to estimate average cost for capacity by network tier ($ per kVA) versus other approaches
Q7. Are there variations to the proposed network capacity costing requirements you consider would materially improve the proposed Code amendment?	Not at this stage, but we may have comments in the cross-submission process.
Q8. Do you consider the pioneer scheme pricing methodology would improve connection pricing efficiency and deliver a net benefit?	See HoustonKemp's report on the efficiency implications of the proposed pioneer scheme at A1.3 We are concerned the administrative burden of managing the scheme would outweigh the benefit. In our prior experience of managing a similar scheme, there can be significant cost and complexity involved particularly where parties entitled to payment cannot be found (e.g. a developer who winds up the company).

	We are also unclear how the pioneer scheme would work where the connecting party makes a partial payment upfront and the rest through time.
Q9. Are there variations to the proposed pioneer scheme pricing methodology you consider would materially improve the proposed Code amendment?	Variations should be made to minimise the administrative burden. For example, we recommend the scheme be triggered by the customer (rather than pro-actively by the distributor) i.e. the customer should 'opt in' to the scheme. The distributor should be able to deduct its reasonable administrative costs of the scheme (in line with Australian precedent). If the scheme is introduced, we support using de-minimum thresholds, however, as currently drafted they are too low (for example, the AER's default length is seven rather than 10 years).
Q10. Do you consider the cost reconciliation methodology would improve connection pricing efficiency and deliver a net benefit?	No. Our concerns relate to the potential for this to become the required approach at full reform. We consider retaining flexibility in capital contributions will better promote the long-term benefit of consumers by allowing EDBs to adopt approaches that best suit the specific needs and circumstances of their network and customers. The Authority's proposed efficient pricing nets off the 'incremental revenue' that an EDB is forecast to receive via ongoing payments for use of the network. We have the following concerns that this – • could disadvantage existing customers where new customers disconnect before their costs have been recouped (i.e. where a business fails); • Will inhibit competition in relation to contestable connections; and • In practice will result in cross-subsidisation from households to larger customers given distributors will not be able to individually price based on the reconciliation methodology for every customer (i.e. it would require the net incremental cost calculation to be undertaken for every customer). See discussion on pages 24-30 and expert reports from Axiom Economics and HoustonKemp.
Q11. Are there variations to the proposed cost reconciliation methodology you consider would materially improve the proposed Code amendment?	If distributors are required to price in line with the proposed cost reconciliation methodology at full reform: • the Code should ensure distributors can manage the risk of new customers disconnecting before their costs have been recouped leaving existing customers to cover these costs. (e.g. the Code

	should expressly allow distributors to impose security schemes (as in Australia). • The Authority should also consider the nuances of the approaches in overseas jurisdictions. For example, that the incremental cost revenue test actually only applies to a subset of connections. If regulation is required, it should only be contemplated for costs between the incremental and standalone cost pointsas this would be a range within which pricing can be considered efficient. Distributors should retain flexibility to price within this range. See discussion on pages 24-30 and expert reports from Axiom Economics and HoustonKemp.
Q12. Do you consider the reliance limits would improve connection pricing efficiency and deliver a net benefit?	No. The reliance limit appears to have been based on a concern about the potential for contribution rates to increase over time rather than about pricing efficiency. Accordingly, there is no reason to assume it would deliver any pricing efficiency. As discussed in our submission, the Authority has not established why increasing capital contributions are a problem in practice. We consider the reliance limits will ultimately result in consumer harm, given: • The encroachment on the Commission's jurisdiction; • It could result in cross-subsidisation; and • It could compromise necessary investment. We strongly recommend the reliance limits be abandoned. See discussion on page 15, pages 22-24 and expert reports from Axiom Economics and HoustonKemp.
Q13. Are there any variations to the proposed reliance limits you consider would materially improve the proposed Code amendment?	Yes. The proposed Code amendment to introduce the reliance limits should be removed. It has no demonstrably positive impact on the efficiency of connection prices.
Q14. Do you consider the exemption application process (together with guidelines) can be used to achieve the right balance between improving connection pricing efficiency and managing transitional impacts on non-exempt distributors?	We are concerned the exemption process will not provide sufficient certainty to manage distributor and investor concerns about the significant impact of the proposals, particularly the reliance limit. If the Authority progresses reforms, s54V will need to be used to manage the impact of the reliance limit and, most likely, the additional costs involved in implementing the proposals in this consultation and the connections consultation.

	However, given the significant impact and workload involved for both EDBs and the regulators, along with concern around regulatory certainty, it would be more appropriate to delay implementing proposals that impact EDB revenue (such as the reliance limit) proposals until the next DPP. For completeness, we consider the best course of action would be to abandon the reliance limit entirely.
Q15. Do you consider the dispute resolution arrangements proposed (for both participants and non-participants) will provide the right incentives on distributors and connection applicants to resolve disputes about the application of pricing methodologies to connection charges and improve connection pricing efficiency and deliver a net benefit?	The majority of the fast-track measures relate to the provision of information to customers (e.g. the reconciliation methodology). We see a risk where customers engage in the dispute resolution process due to confusion that the reconciliation methodology (etc) is for information purposes only, not a prescriptive pricing requirement. Accordingly, the Authority should take steps to ensure the dispute resolution process does not end up either causing administrative burden (to both customers and EDBs) based on misunderstandings or result in the information requirements of the fast-track measures becoming de-facto pricing requirements through the dispute resolution process.
Q16. Are there variations to the proposed dispute resolution arrangements you consider would materially improve the proposed Code amendment?	See response to Q15.
Q17. Do you consider the alternative contractual terms option would be better than the approach in the proposed drafting attached to this paper? Please give reasons.	In line with our comments on the network connections consultation, we consider that the contractual terms alternative could be beneficial to allow EDBs to develop relevant terms, either individually or collectively (e.g., through ENA) to the extent appropriate, while also allowing for differences across EDB. We support allowing private dispute resolution arrangements without the need for regulatory enforcement processes, in line with the approach used in the DTA and DDA and as understood by the industry.
Q18. Do you think a sinking lid approach to reliance limits would be preferable to the proposed static limits approach described in sections 7.80 – 7.105?	Neither option should be pursued. Further reducing the reliance limit would have a significant impact on Vector and our customers. It could significantly compromise EDB financeability and would undermine the ability of EDBs to invest to deliver electrification. This would materially harm customers. We consider the reliance limits proposal should be entirely abandoned. Further reducing the reliance limit (e.g. through the 'sinking lid' approach) would significantly exacerbate the negative impacts of the proposal and lead to customer harm.

	See discussion on page 22-24 and expert reports from Axiom Economics and HoustonKemp
Q19. Do you think any element of the fast-track package should be omitted, or should begin later than the rest of the package?	The reliance limits should be omitted entirely for the reasons discussed on page 22-24. However, if the Authority decides to introduce the reliance limit (or other measures that impact EDB maximum allowable revenue) it should be delayed until the next DPP to avoid negative impacts on investment and regulatory certainty.
Q20. Are there other parameters you think the Authority should consider for the proposed connection pricing methodologies? If so, which ones and why?	We recommend the Authority move away from the current proposed parameters and pursue more targeted reform. See discussion on page 32
Q21. Do you agree pricing methodologies should apply to LCC contracts? If not, please explain your rationale.	No. Our understanding is the LCC is intended to be an analogous mechanism to Transpower's 'new investment contracts' (which are entirely outside of the TPM). LCCs are limited to large connections (as defined in the IMs) and involve parties that are sophisticated and able to negotiate appropriate terms. If pricing methodologies for full reform were applied to these contracts it would remove the flexibility of these parties to negotiate and subvert the intent of the Commission in including the LCC mechanism in the IMs. It would also mean LCCs and connections to Transpower's network are treated differently. This could incentivise parties to connect to EDBs over Transpower even if this is not the most efficient solution.
Q22. Do you agree the proposed requirements, other than reliance limits, can be applied satisfactorily to connections with vested assets? If not, please explain your rationale.	We have not provided comments on this point, but may in cross-submissions.
Q23. Do you have any comments on the impact of reliance limits on incentives to increase prevalence of asset vesting?	It would appear that introducing such limits could encourage EDBs to require connecting parties to engage a third-party accredited service provider to design and construct connection assets and then gift them to the EDB as part of a contestable regime.
Q24. Do you agree the proposed methodologies are compatible with contestable connection works? If not, please explain your rationale.	No. The reliance limit introduced as part of the fast-track and the foreshadowed net incremental cost approach for the full reform will inhibit competition by effectively forcing EDBs to under-cut any competing option the consumer were to pursue. See discussion on pages 26-29and HoustonKemp's expert report

Q25. Do you agree that fast-track methodologies should not apply to embedded networks? If not, please explain your rationale.	We have not provided comments on this point but may in cross-submissions.
Q26. Do you have any comments on the Authority's anticipated solution for longer-term reform?	We have significant concerns about the potential for the reconciliation methodology to become the mandatory pricing approach. See discussion on pages 24-30 and reports from HoustonKemp and Axiom Economics.
Q27. Are there other alternative means of achieving the objective you think the Authority should consider?	The Authority should first undertake empirical analysis to confirm whether there is a connection pricing issue to address. Our understanding is the Authority's proposals are ultimately driven by concerns from CPOs and a desire to support more of these connections. If this is the case, more targeted reform to support this outcome should be investigated rather than wholesale connection pricing reform. See also our response on page 32 and reports from Axiom Economics and HoustonKemp.

Economic review of problem definition

A report for Vector

December 2024

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Contents

1. Introduction

This report has been prepared by Axiom Economics (Axiom) on behalf of Vector. Its subject is the analysis of connection pricing contained in the Electricity Authority's (Authority's) *Distribution connection pricing proposed Code amendment, Consultation paper*.[1] Specifically, we have been asked by Vector to provide our thoughts on question 2 in the Consultation paper; namely: "do you agree with the problem statement for connection pricing?"

The Authority's problem statement spans approximately three pages[2] and describes the shortcomings it claims to have identified with the existing connection charging arrangements. It is supported by a more detailed report prepared by CEPA.[3] The Authority highlights a variety of perceived deficiencies with the existing regulatory pricing and revenue cap arrangements. However, by way of broad summary, it appears to be concerned primarily that:[4]

The Authority has proposed major reforms. It is therefore important to ensure they are based on a sound problem definition.

- Under the Part 4 price paths,[5] electricity distribution businesses (EDBs) have an incentive to take advantage of their 'market power' by charging too much for connections and demanding payment upfront via capital contributions.
- Connection charges can be inefficient. Sometimes this is said to be because prices are 'too low' but, plainly, the Authority's more pressing concern is that they are more frequently 'too high' and have been increasing over time.
- Those prices are thought to be causing connection rates to be 'too low', with new customers being prevented from connecting when it would be efficient for them to do so. This is claimed to be hampering electrification.

On the basis of this problem definition and the supporting analysis, the Authority has proposed a package of fast-track measures that it plans to implement in the near-term. It has also foreshadowed a collection of more extensive reforms it may look to introduce subsequently. The fast-track proposals alone represent major reforms that would be highly disruptive for EDBs. It is consequently important to ensure they are predicated on a sound problem definition.

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1 Electricity Authority, *Distribution connection pricing proposed Code amendment, Consultation paper,* 25 October 2024 (available: here; hereafter: 'Consultation paper'). The preceding paper in the consultation was: Electricity Authority, *Distribution Pricing Reform: Next steps*, 7 May 2024, pp.10-29 (available: here; hereafter: 'Next steps document').

2 Consultation paper, pp.26-29.

3 CEPA, *Regulation of distribution connection charges in New Zealand, New Zealand Electricity Authority*, 14 October 2024 (available: here; hereafter: 'CEPA report').

4 For the avoidance of doubt, this does not represent an exhaustive account of all the potential issues raised in the Consultation paper and the accompanying CEPA report.

5 The price-quality path regime is contained in Part 4 of the *Commerce Act 1986*. The default (and customised) price-quality paths are regulatory mechanisms set by the Commerce Commission that apply to (amongst others) electricity distribution businesses (EDBs). The regime determines the maximum revenues that businesses may earn whilst maintaining specified quality standards.

1.1 Robust solutions require robust problem definition

Effective regulatory policy reform begins with a clear and robust problem definition. Without a coherent understanding of the issue at hand, a regulator is unlikely to develop solutions that enhance consumer welfare. In fact, poor problem definition can inadvertently lead to reforms that harm overall welfare, despite a regulator's best intentions. For example, an inadequate or incomplete problem statement may lead a regulator to:[6]

Inadequate problem definition can lead to poor regulatory decisions that harm consumers.

- Intervene when there may in fact be no problem to address, or where the magnitude of the issue at the hand does not warrant the recommended solution, i.e., the regulator may intervene when it is neither necessary nor appropriate.
- Diagnose the *wrong* policy option, i.e., it could be that there *is* a significant problem, but because it has not been defined or assessed clearly and succinctly the regulator may mistakenly recommend a sub-optimal reform option.
- Intervene when others are better placed to do so, e.g., inadequate problem definition and analysis may cause a regulator to miss the fact that other entities may have superior options at their disposal.

An opaque or misguided problem definition can also serve to compromise the policy consultation *process*. Affected parties may be forced to expend more time, money and internal resources than necessary engaging.[7] This may detract from other important work they could be doing instead. In the case of EDBs, time spent unnecessarily engaging in prolonged regulatory processes could detract from crucial efforts to facilitate electrification.

1.2 The problem statement is flawed

The Authority has clearly invested significant time and effort into identifying and articulating the perceived issues with the current connection charging frameworks. Unfortunately, those endeavours notwithstanding, it appears to have fallen into several of the common pitfalls described above – perhaps even all of them. For example, our review has identified the following weaknesses with the Authority's problem statement:

6 An opaque or misguided problem definition can also serve to compromise the policy consultation *process*. Affected parties may be forced to expend more time, money and internal resources than necessary engaging. This inevitably detracts from other important work they could be doing instead. In the case of EDBs, time spent unnecessarily engaging in prolonged regulatory processes may detract from efforts to facilitate electrification.

7 The Authority's transmission pricing methodology (TPM) review provides a sobering illustration of what can happen when insufficient attention is paid to the initial problem definition. Opinions differ on whether the TPM review ultimately culminated in a welfare-enhancing reforms. Yet few would dispute that the review itself was needlessly prolonged and complicated by an inadequate initial problem specification – at considerable cost.

There are several significant shortcomings in the problem definition.

- The analysis is purely theoretical, with no empirical evidence provided to substantiate the claim that connection rates are being constrained to inefficiently low levels. Furthermore, many of the alleged 'incentive' problems seem to overlook the practical realities of how connections are actually carried out, suggesting that these issues may be largely illusory, in practice.
- Even if connection rates are being unduly constrained by the incentive properties of the Part 4 framework, it is unclear why radical pricing reforms would be the optimal solution. A more effective approach might involve the Commerce Commission addressing any underlying issues within the price-quality path framework, provided these issues are genuinely pressing.
- The proposal to base charges on net incremental cost[8] does not recognise the vital distinction between revenue received up-front via connection charges (with certitude) and revenue earned subsequently via usage charges (without certainty[9]). The Authority has therefore mischaracterised this supposed underlying problem and arrived at a 'solution' that is, at best, incomplete.

It has not been established that there are substantial problems that would be best addressed via the proposed reforms.

- Even if one hypothetically accepts that connection charges are inefficient and that the Authority's proposed pricing revisions would address this, the purpose of the proposed 'reliance limit' remains unclear. If capital contributions are efficiently costed/priced, the resulting aggregate levels should also be efficient—or at least not problematic.

Consequently, we believe it has not been demonstrated that there are significant issues with the status quo that warrant the Authority's proposed reforms. To be clear, we are not claiming that the status quo is without flaws or that other proposals or parties could not bring about improvements.[10] Rather, we are simply saying that the problem statement does not provide a sufficiently robust foundation for the *current* proposals.

1.3 Structure of this report

We elaborate in the remainder of this report, which is structured as follows:

- **section two** explores the supposedly problematic incentives created by the current structure of the Part 4 price paths;
- **section three** explains why it is not self-evidently problematic for EDBs to be requiring higher up-front capital contributions;
- **section four** describes why is has not been shown that connection charges exceed an efficient level and discusses the treatment of incremental revenue;

8 Initially this would be via a 'reconciliation requirement', but this is intended only to be a stepping stone towards a 'full reform' where formal requirements would be introduced compelling the application of such a methodology.

9 A connecting customer might disconnect/exit at any time. Hence, there is no guarantee that 'usage' revenues will be ongoing, all other things being equal.

10 We have not examined that issue and express no opinion on it. We have simply considered whether *the Authority* has identified any significant shortcomings.

- **section five** demonstrates why the proposed reliability limit does not serve any obvious efficiency-enhancing purpose, i.e., it does not address a problem; and
- **section six** addresses several other matters raised in the Consultation paper, including 'first mover' and 'last straw' issues, and inconsistencies across EDBs.

For the avoidance of doubt, the opinions expressed throughout this report are our own and do not necessarily reflect the views of Vector.

2. The level of connection costs

The Authority suggests that the existing Part 4 regime, as administered by the Commission, creates several undesirable incentives. Specifically, it claims that EDBs hold 'market power' due to their control over network access, potentially allowing them to charge excessive prices for connections. Additionally, the Authority suggests that EDBs may exploit their connection pricing to shift expenditure in or out of their regulated asset bases, effectively 'gaming' the Commission's framework.

While these concerns may have some theoretical foundation, little attention has been given to their practical feasibility. The reality of connecting thousands of customers annually (as is the case for many EDBs) may render such strategies impractical. Notably, no evidence or case studies have been provided to substantiate fears of overbuilding or gold plating. Furthermore, even if these incentive issues were valid, it does not necessarily follow that radical pricing reform by the Authority is the appropriate or proportionate solution.

2.1 Distributors are largely facilitators

It is true that the capital expenditure associated with connection costs is not subject to forensic scrutiny by the Commission. It is also undoubtedly the case that EDBs have market power in the provision of connection services on account of their natural monopoly positions. The Authority and CEPA have each suggested that these factors mean EDBs may not have sufficient motivation to keep a tight rein on connection costs, and may have incentives to over-provide connection assets, i.e., to build assets that are bigger than necessary. However, those concerns may be overstated – or largely illusory – in reality.

Distributors largely pass on connection costs that have been incurred by other parties.

We have been advised that for most connections an EDB is largely a facilitator that outsources a large proportion (or all) of the process to third parties. The work itself (e.g., the trenching, construction of connection assets, traffic management, etc.) is typically performed by contractors who specialise in such tasks. Those parties will then bill the EDB who simply passes-on those charges to the customer. In doing so, the EDB may apply a margin to cover any administrative costs that it incurs performing this facilitatory role. In other words, connection charges are often little more than a 'pass-through' of costs incurred by other parties.

There is nothing intrinsically problematic about connection costs becoming almost akin to a pass-through cost. Provided there is sufficient competition in the supply of connection services and EDBs are not adding unreasonable margins (i.e., well in excess of the underlying administrative costs) the resulting connection charges will reflect appropriately the underlying cost of supplying them. In any event, if there *was* a problem with a lack of competition in the downstream market, the solution would not lie in reforming distribution connection pricing.[11]

[11] Specifically, the problem would lie in the downstream market for the supply of connection services, i.e., in the apparent lack of rivalry.

Many costs are determined by external factors beyond the control of contractors or distributors.

As a more general point, many of the more significant costs of connection that add to the 'final bill' are determined exogenously by factors largely outside the control of the parties performing the works. For example, many of the more onerous health and safety requirements (e.g., traffic management rules) are imposed by local councils and unavoidable. It is also worth mentioning that EDBs may offer connecting parties the option of making many of the connection arrangements themselves if they believe they can get better deals.[12]

As we explain subsequently (in section 6), the additional observations the Authority and CEPA have made in relation to 'first mover' and 'last straw' issues ('overbuild') may have some validity and may warrant some attention. However, addressing those narrower issues – assuming they are significant in practice – does not appear to require radical reforms of the entire pricing framework. More generally, those issues aside, it is not obvious that EDBs are exercising their market power and earning super-normal returns by inflating connection costs.[13]

2.2 Incentives to shift expenditures are purely theoretical

Under the Part 4 regime, a price path is set that assumes a forecast volume of connections and a certain level of capital contributions. Any outperformance *vis-à-vis* these benchmarks results in a financial reward via the IRIS mechanism.[14] CEPA points out that EDBs may have an incentive to 'game' the existing arrangements. It describes various ways an EDB might be rewarded for reducing its net connection capex (i.e., net of capital contributions) that are neither virtuous nor efficient.[15] For example, it notes that an EDB could theoretically:[16]

Little consideration has been given to whether these incentives are a problem in practice (rather than simply in theory).

- increase the upfront capital contribution (CC) required for each connection above the level assumed in the initial 5-year price-path forecast; and/or
- delay or resist connections where the CC will be smaller than the incremental cost and encourage or speed up connections when the opposite is the case.

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12 For example, we understand that Vector allows customers to facilitate their own trenching works, civil works, reinstatement and laying of duct. It also customarily provides a connecting customer with three quotes when engaging with contractors.

13 To that end, the Commission concluded recently that: "Overall, local lines companies are not collectively making excessive profit because profitability has been generally lower than our estimate of a reasonable return on investment." *See:* Commerce Commission, *Trends in local lines company performance,* 25 June 2024, p.4 (available: here).

14 The 'incremental rolling incentive regime' is a mechanism that allows EDBs to keep the benefits of outperformance relative to benchmarks ('efficiency gains') beyond the end of a regulatory period.

15 CEPA report, p.18.

16 CEPA also points out that if an EDB can reduce the 'average incremental cost' (AIC) of each connection, i.e., reduce the average cost of new connections below the level assumed in the original forecast it will be rewarded (See: CEPA Report, p.18). Of course, this would not be the least bit problematic – quite the opposite, in fact. There is also another possibility that CEPA does not raise in its report. Namely, EDBs might seek to unduly influence or distort the forecasts contained in the 5-year price paths. For instance, EDBs could theoretically try and convince the Commission to adopt a forecast that artificially understates the likely level of CCs. However, this is a foundational issue with *any* forecast and regulators – including the Commission – are well-accustomed to testing the veracity of these price-path inputs.

Each of these 'strategies' is conceivable in *theory*. The question is: how likely is it that an EDB would adopt them in *practice?* For the first strategy to be effective, any change would need to be made *after* the CC forecast had been set and designed to produce an outturn sum *below* the baseline level.[17] Yet neither the Authority nor CEPA have presented any examples of EDBs changing their charging approaches 'after the fact' and/or any estimates of the supposed financial benefits derived from doing so. That is not to say no such case studies exist – they simply have not been presented. Therefore, it has not been established that this is a problem in practice.

Successful implementation of the second strategy would require EDBs to take a highly 'hands-on' approach in either promoting or hindering connections, depending on the magnitudes of the applicable CCs and incremental costs. It is hard to see how such a strategy could work in practice. No EDB is likely to have an explicit policy along the lines of: "accelerate valuable connections and delay the more costly ones." As such, any such practice would need to be informal and unwritten. However, no explanation has been provided as to how this practice would be established and executed.

Indeed, many EDBs may be singularly focused on managing the steady flow of new connection requests, including those from new housing developments. For instance, Vector connects around 15,000 customers annually, largely on a 'first come, first served' basis. Given this, EDBs may lack both the inclination and the capacity to engage in the types of manipulation outlined in the CEPA report. To be clear, this is not to deny that such incentives exist in theory—they do. However, they may not be problematic in practice, considering the practical realities of connecting thousands of customers for many EDBs.

2.3 No clear link between problem and proposed solution

The analysis presented so far highlights the potential disconnect between the theoretical concerns raised in the Consultation paper (and the accompanying CEPA report) and the practical realities of connecting customers. While the Part 4 arrangements may, in theory, allow for various forms of 'gaming' in connection processes, it is far less clear whether EDBs have the inclination or capability to pursue such strategies in practice. But suppose for the sake of argument they do – what then should be done?

If these issues are indeed material, the Commission would seem to be the appropriate party to address them via the Part 4 regime.

The Authority's proposed solution is to fundamentally reform the connection pricing framework. This proposal would have enormous ramifications for the 29 EDBs, all of which would have to spend considerable time and effort modifying their pricing methodologies. In our opinion, this prescription is not at all intuitive. If the 'root cause' of the alleged problem is the incentives provided via the Part 4 price paths, one might expect the optimal solution to be found in addressing the issue via the Commission's input methodologies (IMs) or the reset methodology.

17 Namely, to increase the sum being recouped via upfront capital contributions (and therefore outside the RAB) and reduce its *net* connection capex.

Similarly, if EDBs are not adequately controlling connection costs and/or are over-providing connection assets (as discussed in section 2.1), it is far from clear that the Authority is the right entity to address these issues. These concerns appear to stem primarily from the characteristics of the regulatory arrangements managed and enforced by the Commission.

Simply put, it seems counterintuitive to address alleged issues with the incentive properties of the *revenue cap* through a complete overhaul of *pricing*. Ergo, even if the initial diagnosis is accurate (which is questionable), the prescribed 'cure' (connection price reform) and the party proposed to administer it (the Authority) do not appear to be optimal. While considering alternative solutions is beyond the scope of this report, we believe it is highly likely that the Commission would be the more appropriate entity to develop and implement such solutions.

Summary

The Authority suggests that the existing Part 4 regime administered by the Commission incentivises EDBs to gold-plate and strategically shift connection capex in and out of the RAB. While these concerns may have some theoretical basis, little attention appears to have been given to their practical feasibility. The realities of connecting thousands of customers annually (for many EDBs) may simply prevent such manoeuvring.

Even if these incentive issues were genuinely problematic (which has not been clearly demonstrated), it does not follow that radical reforms to connection pricing are the appropriate response. It seems more likely that the optimal solution would involve the Commission adjusting the IMs or the reset methodology. In other words, there does not appear to be a clear and direct link between the alleged problem and the proposed solution.

3. Prevalence of capital contributions

The Authority devotes a significant portion of its paper to highlighting the upward trajectory in capital contributions. It says EDBs have an incentive to use high upfront funding because this shifts the funding burden from *themselves* (and, by extension, existing customers) to newly-connecting parties (exacerbators) and reduces cost recovery risks.[18] While this is presented as problematic, it is not obvious to us why this would inherently be the case.

EPA further explains that the increased prevalence of capital contributions likely means that newly connected customers (who make higher capital contributions) end up paying more for equivalent services than those who connected earlier and paid lower or no capital contributions. It claims that this creates a welfare loss by deterring connection investment decisions. In our opinion, there are several significant problems with these analyses.

3.1 All businesses seek to reduce cost recovery risks

When a connecting party makes an upfront capital contribution towards the costs of a new connection, the EDB has, by definition, covered that portion of its incremental costs. In contrast, the ongoing revenue control arrangements offer only partial protection, especially if the connecting party exits prematurely. It is unclear why it would be concerning for EDBs to account for these cost recovery risks when setting their connection charges – particularly when facing a significant wave of new investment. Any business in any market would be mindful of such risks.

It is unclear why it would be worrisome for EDBs to be mindful of cost recovery risks when designing their connection charges.

Any incremental connection costs (and/or share of common sunk costs) not covered by connecting parties (i.e., exacerbators) upfront will, by definition, need to be recovered through usage charges. This could lead to those costs being 'smeared' across existing users – particularly if the newly connected customer exits before the initial costs are fully recouped. Such a situation could have negative implications for both efficiency and fairness, since it will result in costs being recovered from customers who did not contribute to their incurrence.

Any reduction in upfront capital contributions would also increase financing costs for EDBs. Businesses must incur connection costs upfront so, if connecting parties do not pay upfront, the resulting mismatch in cashflows must be managed through financing. This would come at a time when EDBs are already facing significant financing challenges due to the large investments needed to enable electrification. Those additional costs would all be passed on to existing customers (who are not responsible for those incremental imposts).

None of that is to say that capital contributions cannot be problematic if they are *excessive*, i.e., if they are above an 'efficient' level (a matter we explore in section 4). However, there is nothing inherently problematic about EDBs being incentivised to recoup connection costs via capital contributions *per se*. Indeed, there are sound

[18] Consultation paper, paragraph 5.3(b).

efficiency and fairness reasons for them to adopt this practice. Consequently, that should be the starting point for any problem definition.

3.2 The welfare calculus is incomplete

Higher connection prices are not a problem in and of themselves. It is the overall impact on welfare that matters.

CEPA is correct that the upward trend in capital contributions has led to newly connected customers paying more in total (i.e., for both connection and usage) than older customers. However, this is not inherently problematic. Any change in pricing typically results in both winners and losers.[19] The relevant question is whether this shift leads to any undesirable outcomes for overall welfare. o that end, CEPA has suggested that:[20]

> *"The newly connecting customers can in principle avoid the high charges (in present value) by delaying or deferring connection until all of the existing connection assets have been depreciated out of the RAB – but this could take several decades. The delay or deterrence in taking up new connections is a real economic harm. The previously-connected customers face a small reduction in their ongoing charges so they are better off (they experience a windfall gain), but their connection decision is sunk so there is no welfare gain."* [footnote omitted]

In other words, CEPA claims that the significant growth seen in capital connections (and the resulting higher prices for 'newly-connected' customers *vis-à-vis* older customers) may have:

- had an adverse impact upon the efficiency of new investment by unduly deterring or deferring new connections (i.e., a dynamic inefficiency); and
- had no effect on the efficiency of past connection decisions by existing customers, since those costs have already been sunk.

CEPA has not considered the impacts upon allocative efficiency in its welfare calculus. This is a crucial omission.

However, this overlooks a crucial aspect of the overall welfare equation: allocative efficiency. As CEPA acknowledges, higher upfront capital contributions lead to lower use-of-system charges. These lower ongoing prices contribute to a static efficiency improvement by increasing demand from existing customers (as most EDBs still incorporate volumetric charging). After all, the price elasticity of demand for electricity distribution network usage is not perfectly inelastic.

The potential trade-off between achieving higher allocative efficiency and fostering greater dynamic efficiency is widely recognised. This trade-off is especially significant when pricing services provided by long-lived infrastructure assets. It is therefore surprising that CEPA has neither acknowledged nor accounted for this well-understood aspect of regulatory pricing in its efficiency assessment.

19 There is no regulatory principle that says that prices must always be the same across all generations of customers.

20 CEPA report, p.16.

Instead, CEPA has implicitly assumed that the welfare gain from lower use-of-system charges is zero.[21] This is clearly not the case. While examining the size of that welfare effect is beyond the scope of this report, we can confidently say that it exists and has not been explored. This is a significant omission, because it means it has not been demonstrated, even at a conceptual level, that the observed increase in capital contributions has negatively impacted overall efficiency.[22] In short, the welfare analysis is incomplete.

3.3 More connection is not always virtuous

As noted earlier, the primary alleged 'economic harm' from the rise in capital contributions is a supposed chilling effect on new connection investments. However, it is not inherently problematic if a customer is discouraged from connecting by the prevailing charges. The key consideration is whether those charges are providing efficient signals, which we explore in Section 4. One cannot automatically assume that a failed connection is a negative outcome and, therefore, indicative of a significant problem.

More connection is not necessarily virtuous – it all depends on the efficiency of the price signals.

If a customer decides not to connect, it could be because the required capital contribution was 'inefficiently high' – that is certainly a possibility. However, it is not the only potential explanation. It may be that the price was efficient, but the connection itself was not. For instance, the connection might not have proceeded because the business case did not stack up – the projected revenue may have been insufficient to cover the efficient costs of connection (the components of which we discuss in Section 4).[23]

In other words, the charging framework may have simply prevented a 'bad investment' from occurring. If the connection price is set too low and a newly connected customer's business fails and it exits before the incremental costs are recouped, those costs must then be spread across other users. Therefore, more connections are not inherently beneficial. Whether they are virtuous depends entirely on whether they are being driven by efficient pricing.

As we explain in Section 4, the pricing 'efficiency benchmark' outlined by the Authority is both imprecise and incomplete. As a result, it is difficult – if not impossible – to determine whether most EDBs' connection prices are 'too high' (as suggested) or, consequently, whether the rates of connection are 'too low'.[24]

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21 Or, alternatively, they have assumed that the demand for electricity distribution network usage is perfectly inelastic, which is incorrect.

22 This depends ultimately on the relative impacts on connection investment decisions (which the Authority and CEPA have suggested might have been unduly deterred) and the efficiency of network usage (which has not been examined).

23 Another possibility is that the price of connecting in a particular location was prohibitive *vis-à-vis* the option of connecting in other places where the charges would have been lower (e.g., because the costs to the EDB or EDBs differed).

24 There is a separate issue of whether connection processes are too slow, due to matter such as transaction costs. However, we have not explored that matter in this report.

Furthermore, no empirical analysis of connection rates has been provided, as discussed below.

3.4 No data have been presented

Even if the prevailing capital contribution requirements are 'too high' or 'too onerous' (a possibility we explore in Section 4), it does not necessarily indicate a substantial problem with parties deciding not to connect or delaying their decisions. It could be that most (or even all) parties ultimately proceed with the connection, however begrudgingly, and pay the higher price. If that is the case, then the main concern raised by the Authority and CEPA – electrification demand not connecting – would be purely theoretical and, in practice, illusory.

Almost no evidence has been presented to support the claim that connections are actually being prevented, let alone that those connections would have been efficient. The *Next Steps* document released by the Authority in May included a few anecdotal references to connection costs 'hampering' private sector investments in EV charging stations. However, these assertions were not backed by any quantitative evidence. For example:

No data have been presented to support the proposition that connections are being prevented.

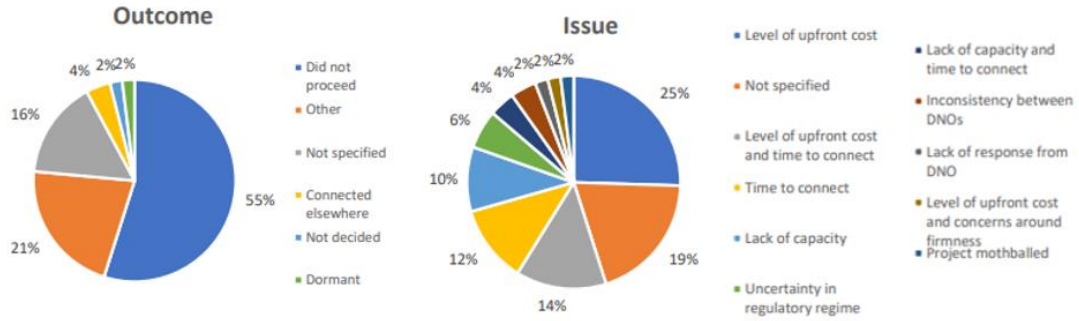
- No *empirical* evidence has been provided regarding the number of projects where parties experienced difficulties connecting (unlike, for example, the analysis contained in Ofgem's recent connection boundary discussion note, which is detailed below[25]).
- Similarly, no quantitative data have been supplied on the reasons behind any such difficulties (e.g., whether they were caused by high up-front charges or other factors) or, importantly, the proportion of projects that proceeded versus those that did not.
- There is also limited analysis of the *types* of parties facing connection issues, although the Authority seems to suggest that these difficulties primarily affect 'electrification demand' projects, such as EV charging stations.

Ofgem's reforms were informed by empirical evidence of impacts upon connection rates.

In contrast, when Ofgem sought to determine whether there were issues with the UK's distribution connection charging arrangements, it explicitly called for empirical evidence. Respondents were asked to provide examples where the connection charging arrangements had caused problems, detailing what happened in each case (e.g., whether the connection proceeded) and the factors driving each outcome. Ofgem received information on 51 projects, which informed its problem statement and policy recommendations. Figure 3.1 below summarises the results of this empirical exercise.

[25] Ofgem, *Distribution connection boundary – discussion note*, pp.10-12. Ofgem provides a breakdown on the number of connection projects that did not proceed as planned and the main reason, e.g., whether it was the upfront cost, lack of capacity, time taken, and so on. The Authority has either not undertaken a similar assessment or, if it has, it has not published the results.

Figure 3.1: Summary of Ofgem's empirical analysis



Source: Ofgem, *Distribution connection boundary – discussion note*, p.11

The Consultation paper lacks the type of analysis conducted by Ofgem. It is possible that the Authority has similar data but has not published them. If that is the case, it is unclear why this information was not made available, since it would have better clarified the problem definition for stakeholders. However, if the Authority has *not* gathered these data, it arguably lacks a solid basis for assessing whether there is a significant issue with connection rates and, consequently, with the underlying connection prices (including capital contributions).

Summary

The Authority suggests that EDBs have an incentive to use high upfront funding because it shifts the funding burden from themselves (and, by extension, existing customers) to newly connecting parties, thereby reducing cost-recovery risks. However, upfront charging is consistent with an 'exacerbators pay' approach to pricing. It is also reasonable for businesses to be mindful of cost-recovery and financing risks. Therefore, there is no *a priori* reason to assume that the widespread preference of EDBs for upfront charges is problematic.

CEPA also claims that the increased prevalence of capital contributions has raised prices for newly connected customers compared to earlier connectors, thereby reducing welfare by deterring connection investment decisions. However, this analysis is incomplete because it fails to account for the allocative efficiency gain arising from the subsequent reduction in usage prices. More broadly, it is important to recognise that not all new connections are inherently beneficial – it depends on the efficiency of the underlying price signals.

Finally, the principal source of alleged economic harm – namely, a chilling impact on electrification demand – is examined purely at a theoretical level. No empirical evidence is presented regarding the effects on connection rates, such as case studies showing where connection charges caused problems and what happened in each instance (e.g., whether the connection ultimately proceeded). This contrasts sharply with the problem definition presented in Ofgem's recent boundary discussion note, which relied heavily on such empirical analysis.

4. Level and structure of connection charges

The Authority has raised the concern that the level and structure of connection charges may be inefficient. While at times this is attributed to prices being 'too low', the Authority's primary concern appears to be that they are more often 'too high', i.e., supposedly exceeding an efficient level. However, the Authority's 'efficiency benchmark' is inherently imprecise, making it challenging to determine whether current prices are truly problematic.

The proposal to base charges on net incremental cost[26] also fails to account for the crucial distinction between revenue received upfront via connection charges (with certainty) and revenue earned later through usage charges (without certainty). If the Authority decides to proceed with its reforms, any incremental revenue adjustment should therefore be restricted to specific customer types, or EDBs should be allowed to require bank guarantees.

4.1 Incremental and sunk costs

When a customer connects to the distribution network, new or 'incremental' costs are incurred. These may include the construction of new connection assets, the employment of labour, road traffic management and other associated expenses. Conventional economic theory holds that it is appropriate for the connecting customer (the 'exacerbator') to bear these incremental costs (with some exceptions[27]). If the customer is unwilling or unable to cover these costs (or arrange financing), it suggests that the connection is not efficient and should not proceed.[28]

There is a multitude of economically orthodox ways in which sunk costs can be recovered.

Next, there is the issue of the sunk costs associated with the existing network that the new customer will use. These costs may include existing 'connection' assets, which are shared by multiple identifiable parties, as well as 'interconnected/grid' assets, where individual users cannot be specifically identified. There are various economically orthodox methods for recovering these sunk costs. Ideally, these costs should be recovered in a manner that minimizes distortions to demand, such as through 'Ramsey Pricing'.

However, pure Ramsey Pricing is rarely feasible, since there is typically insufficient granular information available on the willingness to pay of different customers. Consequently, any pricing methodology that generates revenues between incremental and standalone costs can potentially be efficient, or at the very least, cannot be presumed inefficient. In other words, the economic concept of efficiency cannot, on its own, determine a unique set of prices or revenue levels that should be

[26] Initially this would be via a 'reconciliation requirement', but this is intended only to be a stepping stone towards a 'full reform' where formal requirements would be introduced compelling the application of such a methodology.

[27] We discuss 'first mover' and 'last straw' issues subsequently. In these scenarios is may be appropriate in some cases to recover a portion of the incremental costs from other users (including, in the former scenario, future users).

[28] We explained earlier why 'more connection' is not a laudable objective in and of itself.

recovered from specific customer groups, including distinctions between 'new' and 'old' customers.

There is a wide range of cost allocation approaches that might be considered economically 'efficient'.

Rather, the conventional concept of efficiency allows for a considerable degree of discretion in determining which costs can reasonably be recouped from different customers (or customer groups) before prices exceed the boundaries of efficiency. Economic theory does not provide a clear-cut 'bright line' test. Instead, there is a broad range of common cost allocation approaches that could be deemed economically efficient, or at the very least, not obviously inefficient.[29]

As such, one cannot simply point to the increased prevalence of capital contributions in recent years and assume that those prices are inappropriate or inefficiently hindering the uptake of new connections. As explained in the previous section, this is ultimately an empirical question that requires weighing both dynamic and static efficiency considerations and examining the real-world impacts on connection rates. As we have already noted, this analysis has not been conducted, which constitutes a significant gap in the problem definition.

4.2 Treatment of incremental revenue

The Authority's implicit benchmark for efficient pricing also accounts for the 'incremental revenue' that an EDB is expected to receive through ongoing usage payments. The rationale behind this bundling is that a connection party wants access to the network to use it, meaning it will contribute revenue both through upfront payments and ongoing usage fees.[30] As a result, the Authority's calculation of the 'efficient' capital contribution is lower than the incremental cost of providing access, along with a share of common sunk costs.[31] However, this analysis is incomplete, as we elaborate below.

4.2.1 Guidance from competitive markets

It is true that in competitive markets, the price of an upfront 'connection' service is sometimes discounted below the incremental connection costs if the seller anticipates receiving ongoing revenue or margins from usage. For instance, a pay TV company might offer its set-top units (STUs) at a steep discount or even for free.

[29] Put another way, the efficient pricing benchmark specified in the Consultation paper is not a 'bright line' test. As noted earlier, there are many ways in which EDBs might recoup the sunk costs of existing assets that might broadly be characterised as efficient (or, at least, not inefficient).

[30] In other words, by incurring the incremental costs of connecting the access seeker an EDB can, in principle, recover revenue from both upfront charges and from usage charges. In this way, the Authority does not look at connection services in isolation. It instead lumps upfront connection services together with ongoing use-of-system services to, in essence, create a combined offering encompassing both (essentially an 'access' service)

[31] Mathematically, the Authority's efficient pricing benchmark can be expressed as follows: $CC = (IC - IR) + NC$, Where: CC = connection charge; IC = incremental cost; IR = incremental revenue; and NC = network contribution. *See:* Consultation paper, paragraph 7.59.

These STUs allow customers to connect to the service, enabling them to watch and pay for content.[32] However, in such cases, there is always a *quid pro quo*.

Sellers recognise the difference between revenue earned upfront (which is certain) and revenue earned subsequently (which is not).

Whenever upfront charges are discounted below the incremental costs of providing access, the customer is typically required to commit to using the service for a duration long enough to allow for the recovery of those initial outlays.[33] Importantly, if the customer fails to honour this commitment (e.g., by exiting or disconnecting before the costs are fully recouped), there are consequences. For example:

- the supplier may charge an exit fee (or 'early termination fee') that will enable it to recoup any unrecovered connection costs; or
- the supplier may repossess the assets provided to connect (and potentially redeploy them to connect other customers).

The seller will not assume that there is no distinction between revenue earned upfront (i.e., before delivering the service) and revenue earned subsequently. That would be naïve. Instead, the seller will recognise that subsequent revenue from ongoing usage is *not guaranteed* and take appropriate steps to mitigate the risk of being left shortchanged. This crucial distinction has not been addressed in the Authority's proposed reform. This represents a significant omission.

4.2.2 Application to electricity distribution

Upfront charges are often the only way of ensuring exacerbators pay and costs are not smeared across existing users.

In the context of electricity distribution, if a customer exits before the incremental costs of connection have been fully recouped, exit fees are frequently ineffective. That is because customers often disconnect because their businesses have failed, leaving them unable to pay such a fee. Additionally, opportunities to repossess or redeploy assets are entirely dependent upon the situation:

- In some cases, it may be possible to 'redeploy' connection assets for other uses. For example, another customer might come along shortly after and use the same connection for the same or a similar purpose.[34]
- However, in other cases, redeployment may not be feasible. For instance, if an EV charging station proves unviable in a particular location, it is unlikely that a subsequent customer will connect at that same spot.

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32 The STU may even be provided at zero upfront cost.

33 By way of simple example, a pay TV provider will not provide a complimentary $250 digital decoder to a customer unless it has some assurance that it will recoup that sum (and ideally significantly more) via monthly subscription payments.

34 For example, a connection built to electrify a new residential housing development can usually be expected to deliver a fairly reliable ongoing stream of revenue (e.g., there are few examples of 'ghost towns' in New Zealand).

This means that in the absence of instruments such as bank guarantees, very often the only effective means of ensuring connecting customers pay 100% of the incremental connection costs for which they are responsible (i.e., that they have caused to be incurred) is via up-front capital contributions. The Authority has neither recognised nor attempted to address these complexities. It has instead assumed implicitly that:

The Authority has ignored these factors and assumed all forms of revenue are the same and premature exit costs are zero.

- there is no substantive difference between revenue that is recovered up-front via connection charges (with certitude) and revenue earned subsequently via usage charges (with materially less certainty, given the non-zero risk of exit); and
- the unrecovered costs of premature disconnection will be zero,[35] i.e., it assumes that other customers (who do not disconnect) will not have to bear those inevitable costs.

The analysis is therefore incomplete and potentially misleading.

Neither assumption is reasonable. In our opinion, it would be neither efficient nor equitable for 'stranding' costs to be smeared across customers who have not caused them to be incurred. Consequently, if the Authority ultimately opts to implement its reforms, its proposed treatment of incremental revenue should be modified to account for these important factors. Because exit fees are likely to be ineffective in many cases, only a few alternatives remain, which we describe below.

4.2.3 Potential modifications

The first option would be to allow EDBs to *not* net off incremental revenue when setting connection charges (and capital contributions) for customers that pose a particularly high risk of premature disconnection. For instance, we imagine that a connection built to electrify, say, a new residential housing development can generally be expected to deliver a fairly reliable ongoing stream of revenue (e.g., there are few examples of 'ghost towns' in New Zealand).

In contrast, we understand that EV charging companies often lease a new site for a period of, say, two years, to 'test the waters'. If the site proves viable and profitable, the operator will remain and continue to generate an ongoing revenue stream for the EDB. If not, the operator will exit, and realistically, it is highly unlikely that another customer will take over the site. If the location proves uneconomic for one EV charging company, it is likely to be uneconomic for others as well.

The incremental revenue test should be limited to certain customer types or EDBs should be permitted to require bank guarantees.

Consequently, the likelihood of earning ongoing incremental revenues from a connection serving an EV charging site is, on average, lower than from a new housing development. This creates a seemingly compelling argument for treating these two types of incremental revenue streams differently when determining capital contributions. For example, it may be appropriate not to net off incremental revenues for customers deemed to be higher-risk.

An alternative approach would be to permit EDBs to require a bank guarantee from customers before connecting them. The guarantee could be designed to recoup any

[35] These additional costs do not feature in the equations or diagrams presented throughout the Consultation paper.

unrecovered connection costs from departing customers, using approaches employed commonly in the determination of early termination fees. We understand it is relatively common practice for EDBs in Australia to require bank guarantees from certain customer types to assuage the risks described above.[36]

Summary

The Authority has expressed concern that the level and structure of connection charges may be inefficient. While sometimes this concern is framed around prices being 'too low,' its more pressing concern appears to be that they are 'too high.' However, economic theory does not provide a precise criterion for determining when prices fall outside the bounds considered efficient. As long as prices fall between incremental cost and standalone cost, they can potentially be deemed 'efficient' or, at the very least, not obviously *inefficient*.

To demonstrate otherwise, an empirical assessment is needed to evaluate the effects on dynamic and static (productive and allocative) efficiency from transitioning between pricing structures. This analysis has not been conducted, meaning the Authority lacks a solid foundation for determining whether there is a significant issue with the current connection charging framework. As noted previously, the Authority has also failed to present any empirical evidence on the impact of existing connection charges on connection rates, such as the analysis performed by Ofgem.

The proposal to base charges on net incremental costs also overlooks the critical distinction between revenue received upfront via connection charges (with certainty) and revenue earned through usage charges (without certainty[37]). Should the Authority proceed with its proposed reforms, this incremental revenue adjustment should be restricted to specific customer types, or EDBs should be allowed to require bank guarantees, as is permitted in Australia.

[36] Australian EDBs must produce connection policies that are approved by the Australian Energy Regulator. We understand these policies permit bank guarantees to be requested.

[37] A connecting customer might disconnect/exit at any time. Hence, there is no guarantee that 'usage' revenues will be ongoing, all other things being equal.

5. Proposed reliance limits

The Authority has suggested that not only is the pricing of capital contributions problematic (i.e., the amounts charged to individual customers), but also the *overall proportion* of connection costs recovered through such contributions across *all* customers. As a result, it has proposed capping the total levels of capital contributions that EDBs can receive in the future. The Authority argues that without these 'reliance limits,' its other proposals would "not prevent distributors from continuing the historical trend of increasing connection charges."[38]

In particular, the Authority identifies several factors it believes will incentivise EDBs to continue raising capital contributions, such as expanding capital expenditure programmes and rising financing costs.[39] In our view, a robust rationale for these reliance limits has not been presented. Specifically, if the underlying issues are as the Authority describes, it is unclear why these would not be addressed by its other proposals – namely, the prescriptive pricing requirements outlined earlier. We expand on this further below.

5.1 The limits serve no clear purpose

The Consultation paper outlines a comprehensive set of proposed reforms to connection pricing, which would, in turn, affect capital contributions. As noted earlier, if implemented, these reforms would require all EDBs to set connection prices based on net incremental costs (i.e., less incremental revenues). The reforms would also establish prescriptive rules governing the components of the required calculation. The stated goal of these proposed reforms is to ensure that connection charges and capital contributions are set at efficient levels.

If the problems are as the Authority claims, it is not clear why its proposed pricing rules would not address them.

We have explained already why it has not been clearly established that the existing connection charges are in fact 'too high', or that the proposed pricing reforms would represent a material improvement. However, for the sake of argument, let us assume that the pricing proposals would work as the Authority intends and result in connection charges and capital contributions being set at 'efficient' levels. Why then would there need to be an *additional* limit placed on the *overall proportion* of connection costs recovered via capital contributions? It is unclear.

Consider an EDB that is facing a substantial forward-looking capital expenditure program to connect new customers. Suppose it connects those new customers by seeking capital contributions equal to net incremental costs plus a share of common costs, in line with the efficiency benchmark proposed by the Authority. And imagine this results in an *increase* in the overall proportion of funding the EDB receives via such instruments. According to the logic set out in the Consultation paper, such an outcome would be problematic. But why?

38 Consultation paper, p.52.

39 *Ibid.*

The reliance limits would appear to be pointless at best and distortionary at worst.

Provided capital contributions are priced efficiently, the overall level of funding generated by these instruments will also be efficient. This appears tautological. Logically, if the Authority is confident that the prescriptive pricing rules it has proposed will result in efficient connection charges, the additional reliance limits are neither necessary nor efficient.[40] By definition, these reliance thresholds would be superfluous at best, and at worst, distortionary.[41]

The best-case scenario would be if the applicable reliance limit was non-binding, meaning an EDB's capital contributions remained below the threshold. In this case, the limit would have no impact on the capital contributions collected from different customer groups. However, at worst, the limit could force an EDB to reduce the capital contributions from newly connecting customers below the levels suggested by the Authority's own efficient pricing benchmark. Such a situation would clearly be inefficient, according to the Authority's own logic.

5.2 The thresholds are arbitrary

As noted above, there appears to be no compelling reason to impose limitations on the overall level of capital contributions. However, for the sake of argument, let us assume there is some merit in capping the overall proportion of connection costs that EDBs fund through capital contributions. In defining such a limit, it would presumably be necessary to specify guiding economic principles to assess the relative efficiency of different potential threshold levels. However, the Consultation paper provides no such analysis. Instead, the proposed reliance limits appear to be relatively arbitrary.

The proposed thresholds are not based on any clear or coherent efficiency benchmark – they are arbitrary.

There is no basis in economic theory to believe that using a four-year historical average of capital contributions, or an EDB's current level, will produce an efficient benchmark. The primary merit of these numbers seems to be their mere existence. While adopting these limits would prevent the overall rate of capital contributions from increasing over time, as we have already explained, that is not a legitimate goal. As long as an EDB's capital contributions are priced efficiently, the total amount collected is irrelevant, regardless of whether it reflects an increase compared to previous years.

Finally, even if one accepts, for the sake of argument, that the reliance limit serves a legitimate purpose, the question remains: why is there only a *ceiling* on the total level of capital contributions? Why is there no corresponding *floor*? If the Authority believes there is a theoretically ideal *maximum* level of capital contributions, one might logically infer that there should also be a theoretically ideal *minimum* level.

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40 Conversely, if the Authority is *not* confident its recommended proposals would result in connection charges, then it is unclear why it would be proposing them.

41 It is for analogous reasons that no regulator would apply stringent price caps on regulated services in conjunction with a total revenue cap. This combination of regulatory instruments is illogical, since price and revenue caps are substitutes, not complements. At best, the revenue cap would be pointless (i.e., not binding) and, at worst, it would undesirably restrict the supply of efficiently priced services.

The application of a cap without a floor, therefore, reinforces the impression that the thresholds are arbitrary.

In short, there seems to be no solid efficiency rationale for imposing a reliance limit (without a corresponding floor) in addition to the prescriptive pricing rules. The mere fact that the Authority has proposed such a restriction risks creating the impression – however inadvertently – that its primary goal is simply to reduce prices for newly connecting customers. Naturally, that would not constitute a legitimate objective.[42] As a result, there appears to be no clear connection between the stated problem definition and the proposed reliance limit, let alone the arbitrary thresholds suggested by the Authority.

Summary

The Authority has suggested that both the pricing of capital contributions (i.e., the amounts charged to individual customers) and the overall proportion of connection costs recovered through these contributions across all customers are problematic. As a remedy, it has proposed capping the total levels of capital contributions that EDBs can collect going forward. However, there appears to be no compelling efficiency-based justification for introducing these additional 'reliance limits' – especially in the absence of a corresponding 'floor.'

Notably, these limits do not form a coherent part of the Authority's broader suite of recommendations. If the Authority is confident that its prescriptive pricing rules would result in efficient connection charges, then reliance limits are redundant and inefficient. At best, they would be non-binding and serve no purpose. At worst, they could compel EDBs to reduce capital contributions below the levels prescribed by the Authority's own efficient pricing framework.

The lack of a clear efficiency rationale for the reliance limits risks creating the impression – however inadvertently – that the Authority's primary aim is to reduce prices for newly connecting customers. Such a goal, of course, would not be legitimate. Consequently, there appears to be no meaningful link between the stated problem definition and the proposed reliance limits – let alone the relatively arbitrary thresholds suggested by the Authority.

[42] Incidentally, there would appear to be no reason why a new connector could not pay an 'efficient' capital contribution upfront. If financing is not available to a newly connecting customer in such circumstances the most logical explanation is that the connection *is not* efficient (i.e., financiers are unwilling to lend the money because the endeavour is not economically viable).

6. Other matters

The Authority also raises several other potential issues with the existing connection charging arrangements, such as the discrepancies in approaches across EDBs and 'first mover' and 'last straw' dynamics. Although we acknowledge that these could theoretically pose significant challenges, their practical relevance is ultimately an empirical question. As noted earlier, to date, no quantitative analysis has been provided to assess the actual impact of these factors on customers' connection decisions. As a result, there is no solid foundation to determine whether these issues warrant regulatory intervention.

6.1 Inconsistencies across EDBs

There are 29 EDBs in New Zealand, all with unique characteristics. The Authority has acknowledged that it may not be optimal for all EDBs to have the same connection pricing methodology due to these differences in circumstances and the cost of attaining complete alignment.[43] However, it has suggested that the current divergence in connection pricing across EDBs appears "excessively high" and spans differences in terminology, presentation, methodological approach and overall reliance on capital contributions.

The claims regarding inconsistencies across EDBs are unfalsifiable in theory and untested in practice.

The biggest problem with this contention is that it is unfalsifiable. There is no objective, principled standard for determining the 'efficient' or 'optimal' level of diversity across EDBs. As such, whether the existing differences genuinely constitute a problem is ultimately an empirical matter that requires quantitative assessment. For instance, Ofgem's review of connection projects in the UK found that only a small proportion (4%) failed to proceed due to inconsistencies in approaches across EDBs.[44]

The Authority does not appear to have conducted any analysis of the proportion of connection projects that failed to progress or the reasons why, including whether any were abandoned due to 'excessively high' divergences in approaches across EDBs. Without collecting and analysing such data, it cannot determine whether the current differences in EDBs' methodologies constitute a genuine problem. In the absence of evidence, assertions about inconsistencies in approaches remain unsubstantiated.

6.2 Position-in-queue dynamics

The Authority and CEPA also emphasise that the timing of a customer's connection can significantly impact the charges it faces. For instance, the first customer to connect in a location (the 'pioneer') might bear the cost of connection assets designed to accommodate future demand. Similarly, a newly connecting customer could represent the proverbial 'last straw,' triggering a substantial upgrade due to

43 Consultation paper, p.28.

44 Ofgem, *Distribution connection boundary – discussion note*, p.11.

the cumulative demand of previous connections, even if its own contribution to that demand is relatively small.

In both scenarios, the customer may end up paying for assets that significantly exceed its own individual requirements. The Authority and CEPA have suggested that this dynamic could create undesirable incentives for connection applicants to manoeuvre for a more favourable 'position in the queue'- either to avoid being the 'pioneer' or the 'last straw.' In our view, these could indeed be legitimate concerns if such incentives are causing customers to delay (or expedite, as the case may be) their connections solely to minimise their charges..

It has not been established that queueing dynamics are a material problem in practice or that the proposed reforms would represent the best solution.

Once again, this is fundamentally an empirical question. No evidence, examples, or case studies have been provided to demonstrate that these issues are significant in practice. Furthermore, if 'first mover' and 'last straw' dynamics are indeed material concerns, it is not clear that a comprehensive overhaul of the entire connection charging framework is necessary to address them. Presumably, these specific issues – if proven to be significant – could be resolved through more targeted measures that would be far less disruptive.

Summary

The Authority also highlights several potential concerns with the current connection charging arrangements, such as discrepancies in approaches across EDBs and the so-called 'first mover' and 'last straw' dynamics. While these could theoretically pose significant issues, determining their practical significance is ultimately an empirical question. No quantitative analysis has been provided to demonstrate the extent to which these factors influence customers' connection decisions.

Without such evidence, there is no sound basis to conclude that these matters warrant intervention. Furthermore, even if the 'first mover' and 'last straw' issues are indeed significant, addressing them is unlikely to require a comprehensive overhaul of all connection charging arrangements. These specific concerns – if substantiated – could likely be resolved through more targeted measures that would be far less disruptive for the 29 EDBs.

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20 December 2024

Electricity Authority
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By email: distribution.pricing@ea.govt.nz

Distribution connection pricing proposed code amendment

This cover letter is in regard to the Electricity Authority's consultation on proposed code amendments for distribution pricing.

Vector and Orion jointly submit an expert report from Houston Kemp reviewing the proposed code amendments.

Yours sincerely

[redacted]

Richard Sharp
GM Economic Regulation and Pricing
Vector

[redacted]

Dayle Parris
Head of Regulatory and Commercial
Orion

HOUSTONKEMP
Economists

Review of the Electricity Authority's proposed distribution pricing Code amendment

A report for Vector

20 December 2024

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Our report focuses on the economic reasoning underpinning the Authority's full reform proposal. The economic merits of the full reform proposal are critical to understanding whether key elements of the Authority's fast-track proposals should be pursued at this time, since they amount to stepping stones towards an end-point that is derived from this economic foundation.

The Authority's rationale for intervention is limited to a range of potential economic 'inefficiencies' that it identifies at the level of principle, absent any empirical evidence of inefficient outcomes under the current arrangements. Almost all these potential inefficiencies trace back to the Authority's preconception that connection charges are currently 'too high'. Underlying the Authority's proposed reform appears to be a focus on a problem that is confined to supporting the connection of large electrification projects.

The Authority's economic framework is founded on its definition of three conceptual points at which connection charges might be set – the 'neutral point', 'bypass point' and 'balance point'.

The neutral point, which represents the lower bound of the Authority's preferred range of connection charges, reflects pricing below the incremental cost of connection services, which in turn can be expected to:

- inefficiently transfer risks away from connection applicants by deferring the recovery of connection costs by up to thirty years and providing for outstanding costs to be recovered from other customers if the connecting party disconnects earlier than was assumed; and
- deter competition for connection services by allowing connection charges to fall below levels that could be sustained in a competitive market, such that alternative service providers would be unable to match these charges.

Given these concerns about the economic merits of the Authority's full reform, elements of the Authority's fast-track proposals that reflect intermediate steps towards this full reform may raise similar concerns. We find that:

- the Authority's proposal to limit distributors' reliance on capital contributions is not directed at the key elements of economically efficient pricing because:
  - it does not place any lower bound on connection charges, let alone a lower bound based on the incremental cost of facilitating a connection; and
  - the upper bound that it places on connections charges reflects concerns regarding equity as between existing users and new users of the network, rather than efficiency considerations; and
- the Authority's proposal to require reconciliation of connection charges to the neutral point gives rise to unclear and uncertain benefits, while imposing potentially costly reporting requirements for every connection request.

The conceptual point that lies at the heart of the Authority's proposed direction for reform – the balance point – contains no information about economic efficiency. Although the Authority's consideration of this 'balance point' references *efficiency*, the key principle motivating the role of the balance point in the Authority's framework for connection charges is not efficiency and appears to be *equity*. This central consideration is difficult to reconcile with the Authority's statutory objective, which refers to economic concepts of efficiency and competition.

These shortcomings reflect that key elements of the Authority's proposal draw inspiration from the framework for connection charges in Australia, but that framework differs in material respects from how the Authority represents them, as well as how they are reflected in its proposal.

These shortcomings are not necessary features of reforms that would achieve the Authority's objectives. In particular:

- if these objectives include the provision of support to electrification projects, then achieving this through targeted, lower ongoing distribution tariffs is a materially preferable approach;
- if these objectives include the promotion of competition in connection services, then options that provide for connection charges based on incremental costs, rather than the neutral point, would best support this goal; and
- if these objectives include the promotion of economic efficiency, then the potential concerns raised by the Authority about distributors' incentives to fund capital expenditure through connection charges can most directly be resolved through modest amendments by the Commerce Commission that ensure net capital expenditure is unaffected by increases in connection charges, rather than through the Authority changing an entirely different element of the regulatory framework and thereby creating additional concerns.

1. Introduction

The New Zealand Electricity Authority Te Mana Hiko (the Authority) is proposing to change the regulatory arrangements for electricity distribution connection pricing by amending the Industry Participation Code (the Code).

The Authority has published a package of documents on its proposed Code amendment, including:

- a consultation paper in which the Authority sets out the problem that it seeks to address and identifies its 'preferred option' for distribution pricing reform;[1]
- a draft of the proposed Code amendment;[2] and
- a report prepared by CEPA Australia (CEPA) for the Authority that reviews the regulation of electricity connection charges.[3]

The Authority's reform pathway comprises:

- a 'full reform' proposal, which is set out only in broad terms and represents the ultimate destination of the Authority's reform agenda for connection pricing; and
- a 'fast-track' proposal, which is the subject of the Authority's proposed Code amendment and is intended to take some immediate steps towards improvements for connection pricing, as well as providing stepping stones towards the Authority's vision for full reform.

Although the proposed Code amendment relates only to the 'fast-track' proposal, the Authority is also seeking consultation on its full reform. Both the fast-track and full reform proposals are founded on the same conceptual framework.

We have been engaged by Vector to review and comment on the Authority's consultation paper. The focus of our review is the economic reasoning that underpins the Authority's full reform proposal. In our view, an assessment of the economic merits of the Authority's ultimate objective is critical to understanding whether elements of its fast-track proposals that are stepping stones to this objective should be pursued at this time.[4]

The remainder of this report is structured as follows:

- in section two, we explain the nature of and relationship between economic efficiency and competition, which form the bedrock of the Authority's statutory objective;
- in section three, we describe the economic framework established by the Authority's statutory objective and evaluate the problems or 'inefficiencies' by reference to which it seeks to justify regulatory intervention;
- in section four, we describe and assess the conceptual framework that underpins the Authority's full reform proposal;
- in section five, we assess the further implications of this review for elements of the Authority's fast-track proposals that lay the groundwork for its full reform;
- in section six, we discuss elements of the regulatory framework for connections in Australia from which the Authority has drawn inspiration, but that appear to be poorly understood; and

[1] Electricity Authority, *Distribution connection pricing proposed Code amendment*, Consultation paper, 25 October 2024 (hereafter 'consultation paper').

[2] Electricity Authority, *Proposed Code amendment*, 25 October 2024 (hereafter 'proposed Code amendment').

[3] CEPA, *Regulation of distribution connection charges in New Zealand*, 14 October 2024 (hereafter 'CEPA report').

[4] In contrast, the substantial majority of CEPA's report addresses the Authority's fast-track proposals, with only limited consideration of the full reform.

- in section seven, we suggest alternative reform options that could better address the problems that appear to have instigated the Authority's reform agenda.

We assess the Authority's proposed fast-track proposal and provide further context on the framework for connection services in Australia in appendix A.1 and A.2, respectively.

2. Economic efficiency and competition

In this section we describe key economic concepts that are invoked by the Authority's statutory objective and that we therefore draw upon in our assessment of the Authority's problem definition and proposed reforms in sections 3 and 4, respectively.

We focus on the concept of economic efficiency and its implications for efficient pricing, before explaining the relationship between competition and economic efficiency.

2.1 Economic efficiency

In this section, we set out what is meant by economically efficient pricing. We later draw on this discussion to illustrate that the Authority's proposal to limit reliance on capital contributions is primarily drawn from concerns about *equity*, rather than *efficiency*.

Economic efficiency is commonly understood to have three dimensions, comprising:[5]

- **allocative efficiency** – whereby resources are allocated to their highest value use;
- **productive efficiency** – whereby goods and services are produced at the least possible cost; and
- **dynamic efficiency**– whereby innovation and investment take place in response to changing customer preferences and technologies.

In the remainder of this section, we explain how each of these dimensions of economic efficiency exerts influence on the economically efficient pricing of electricity connection services.

For the reasons that we discuss further in sections 3 and 4, the Authority's connection pricing framework is ostensibly, but not in substance, focused on the promotion of efficient connection, which is mostly closely related to the promotion of allocative efficiency. We also explain the relevance of productive and dynamic efficiency to connection pricing, and draw on this material in our presentation of alternative reform options in section 7. Dynamic efficiency plays an important role in the Authority's statutory objective, which we describe in section 3.1.

2.1.1 Allocative efficiency

Allocative efficiency in the provision of connection services is promoted through prices that are set:

- at least equal to the **incremental cost** of providing the connection service to a customer; and
- no more than the **opportunity cost** of the connection service to a customer, whether through bypassing the connection service, obtaining an alternative source of energy or ceasing its economic activity.

Allocative efficiency may also be promoted by allowing the service provider discretion to discriminate on prices within this range.

We explain the basis for this range of prices in more detail below.

Allocative efficiency for the pricing of electricity connection services requires that each party who connects to the network derives a value on the connection service that is greater than the incremental cost of that connection. By implication, other parties do not connect to the network because their connection would place greater costs on the network than the value that they derive from that connection.

[5] Australian government, *National competition policy review (The Hilmer report)*, August 1993, pp 3-4.

In economic principle, allocative efficiency is achieved by setting prices at **marginal cost**. When prices are set at marginal cost, then customers who value the service at more than the resource costs of providing the service will choose to consume it, giving rise to an allocatively efficient outcome.

In the context of electricity connection pricing, where the economic activity involves a decision to connect (or not to connect) to the network, this marginal cost concept is applied as **incremental cost**, being the additional costs that the distributor would incur to connect the customer.

However, the setting of prices at marginal cost or incremental cost for infrastructure services is not common. One important reason for this is the presence of **common costs**, which are not directly attributable to any individual customer or group of customers, but which must be incurred to provide the service. Where common costs exist, then the setting of all prices at marginal cost or incremental cost will not make any contribution to these common costs and will therefore not recover the overall cost of providing the service.

Where such common costs exist, every customer may need to make some contribution to their recovery, for example through the setting of prices at incremental cost plus a contribution to common costs.

It may not always be efficient for all customers to make the same contribution to common costs. If some customers value the service at more than incremental cost, but not enough to make the same contribution as other customers, then an approach that seeks the same contribution from all customers may inefficiently prevent this group of low valuation customers from accessing the service. In these circumstances, **price discrimination** may promote allocative efficiency by ensuring that customers who can contribute to common costs are able to access the service.

Although price discrimination may promote allocative efficiency, there exists an upper bound on allocatively efficient prices. No customer will be willing to pay more than its **opportunity cost** of accessing the service. The opportunity cost is the value to the customer of their next best option, which may involve:

- an alternative means by which the customer can access an electricity supply, such as by providing itself the connection service or by connecting directly to the transmission network;
- an alternative source of energy such as gas or other fossil fuels; or
- the option not to proceed with the economic activity that gives rise to its need for an electricity connection.

If a price is set above the opportunity cost then the customer will choose not to connect to the network and to pursue one of these alternative options instead. If this opportunity cost exceeds the incremental cost of the connection, then this outcome is allocatively inefficient because the customer values the ability to connect at more than incremental cost, and could therefore contribute to the recovery of common costs.

2.1.2 Productive efficiency

Productive efficiency concerns the provision of goods and service at least cost. In the provision of connection services it can be promoted either by:

- providing some degree of disconnection between price and cost, such that service providers face profit-based incentives to reduce their costs; or
- opening the provision of connection services up to competition, whereby customers can seek to contract to install their own connection assets if they are not satisfied with the costs that would be incurred by their distributor.

In competitive markets, firms are presumed to have strong incentives to seek productive efficiencies so that they can produce output at least cost. These incentives arise out of profit maximising conduct. Specifically, a firm in close competition with other businesses cannot sustain productive inefficiencies over an extended period, since this would affect its ability to sell its output at the market price for a profit.

Economic regulation often seeks to mimic this 'price taker' feature of competitive markets by disconnecting revenues and prices from costs, at least for some period of time. This provides for the prospect of economic profit, through incentive payments, to regulated businesses that can reduce their costs below the regulatory allowance.

For example, the Commerce Commission operates an incremental rolling incentive scheme (IRIS) under the Input Methodologies that it applies to non-exempt distributors and to Transpower.[6] This scheme allows service providers to retain the benefit of achieving actual expenditure below the regulatory allowance, or bear the cost of incurring actual expenditure above the regulatory allowance:

- in relation to operating expenditure for distributors and Transpower, for a period of five years before these benefits or costs are passed onto customers;[7] and
- in relation to capital expenditure for distributors, by a retention factor that will be 32.16 per cent in relation to the forthcoming regulatory control period.[8]

2.1.3 Dynamic efficiency

Dynamic efficiency in the provision of connection services may be promoted through:

- providing incentives to pursue technical innovations that would reduce the costs of providing connections over time; and
- providing incentives for distributors to innovate in connection pricing, such as through the use of price discrimination and/or flexible connection offers, so as to increase the use of shared network assets and reduce charges for existing customers.

The Authority has stated that its primary focus is to promote dynamic efficiency in the electricity industry.[9]

If appropriate incentives are provided for productive efficiency, then this will tend also to promote some aspects of dynamic efficiency, since a business will face incentives to seek out technology improvements to reduce the costs of providing services over time.

However, some aspects of dynamic efficiency, such as innovating to serve changes in customer preferences, are difficult to promote in the context of regulatory frameworks that link prices closely to costs (whether actual or benchmarked), rather than value delivered. Such frameworks may not provide strong incentives for businesses to seek out innovative opportunities that deliver new sources of benefits for customers.

2.2 Competition

Competition is a dynamic process of rivalry, whereby firms seek to maximise their profits by offering price-product-service packages to customers that are more attractive than their rivals, whilst minimising their costs. Descriptions of competition often quote Stigler's definition, ie:[10]

> [Competition is] rivalry between individuals (or groups or nations), and it arises whenever two or more parties strive for something that all cannot obtain.

[6] Commerce Commission, *Electricity distribution services input methodologies determination 2012*, 23 April 2024, Part 3, Subpart 3; and Commerce Commission, *Transpower input methodologies determination*, 23 April 2024, Part 3, Subpart 6.

[7] Commerce Commission. *Amendments to input methodologies for electricity distribution services and Transpower New Zealand*, Incremental rolling incentive scheme, 27 November 2014, 5.2.2.

[8] Commerce Commission, *Electricity distribution services default price-quality path determination 2025*, 20 November 2024, schedule 2.2 (4).

[9] Electricity Authority, *Interpretation of the Authority's statutory objective*, 14 February 2011, para A.11.

[10] Stigler G.J. (2008) *Competition*. In: Palgrave Macmillan (eds) The New Palgrave Dictionary of Economics. Palgrave Macmillan, London. Vickers, J, *Concepts of Competition*, Oxford Economic Papers, vol. 97, 1995, p 3 refers to this definition.

There are many ways in which firms engage in the process of competition, including by choosing product characteristics, investment levels, prices, levels of output, allocations of risk, quality, brand development, and types of inputs.

Competition is widely understood by economists to be a process that brings about benefits for consumers and society in the form of economic efficiencies, ie, the attainment of more and better products and services, at a lower cost, for the benefit of consumers. Workably competitive markets are often presumed to deliver economically efficient outcomes.

Where competition does not exist or is weak, policymakers may seek to design a framework of economic regulation to deliver similar outcomes.

Although distributors are natural monopolies, this is not always the case for connection services, which have the potential to be provided in a competitive environment. The effects on competition – and the benefits for consumers it may bring – are an important consideration for regulatory reform of connection charges. We discuss the implications of the Authority's proposed reforms on the promotion of competition in section 4.2.3.

3. Problem definition

In this section we describe and comment on the problems or 'inefficiencies' by reference to which the Authority seeks to justify regulatory intervention.

Problem definition is a foundational element of any regulatory reform process. A precise articulation of the observed outcome to be addressed, along with its shortcomings, lays the platform for regulatory reform that is measured and targeted to the problem at hand.

3.1 Authority's statutory objective

The Authority's statutory objective is important context to its problem definition, since it is the reference point against which it assesses the need for reform.

The Authority explained that its:[11]

> …main objective is to promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers.

This main objective refers to the promotion of:

- competition, which is the process through which efficient outcomes are promoted in circumstances where there is rivalry between potential suppliers;[12]
- the efficient operation of the electricity industry, which appeals to the least-cost provision of services, ie, productive efficiency;[13] and
- reliable supply by the electricity industry, which reflects and invokes consideration of the tension between productive efficiency and short term allocative efficiency, eg, that a narrow focus on the lowering the cost of supply could reduce reliability below the level for which customers are willing to pay.[14]

That their promotion is for 'the long term benefit of consumers' clarifies that benefits are measured over the long term, thereby appealing and placing a balance of emphasis on the dynamic element of economic efficiency.[15]

It also clarifies that these long term benefits are 'for consumers', as distinct from any other societal interest group. This clarification likely reflects that, absent qualification, the pursuit of efficiency generally goes to the benefit of society as a whole, ie, measured as the sum of the economic surplus or benefit derived by both consumers and producers.[16]

[11] Consultation paper, para 3.2.

[12] For example, the Authority notes the importance of competition in delivering lower prices and in delivering allocative, productive and dynamic efficiencies. See: Electricity Authority, *Interpretation of the Authority's statutory objective*, 14 February 2011, paras A.20-A.24.

[13] For example, the Authority focuses on taking into account incentives for efficient investment and innovation in the electricity industry. See: Electricity Authority, *Interpretation of the Authority's statutory objective*, 14 February 2011, para A.59.

[14] For example, the Authority identifies the potential trade-offs over and optimisation of reliability. See: Electricity Authority, *Interpretation of the Authority's statutory objective*, 14 February 2011, paras A.37-A.40.

[15] This is consistent with the Authority's view of its statutory objective. See: Electricity Authority, *Interpretation of the Authority's statutory objective*, 14 February 2011, para A.27.

[16] Again, this is consistent with the Authority's view of its statutory objective. See: Electricity Authority, *Interpretation of the Authority's statutory objective*, 14 February 2011, para A.6.

The Authority also has an additional objective that serves further to narrow its focus on consumers by placing a balance of emphasis on domestic and small business consumers, and only in their dealings with industry participants. Specifically, the Authority explained that:[17]

> Its additional objective is to protect the interests of domestic and small business consumers in their dealing with industry participants

We conclude from our assessment that the Authority's statutory objective:

- has a strong focus on the promotion of economic efficiency; and
- invokes consideration of equity only insofar as it refers to 'consumers' and, in particular circumstances, the further subset of domestic and small business consumers.

These characteristics add colour to the Authority's representation of a wide range of considerations as matters of economic efficiency in its subsequent analysis, which we discuss in section 4.

They are also reflected in a problem definition that seeks to identify a wide range of potential inefficiencies.

3.2 Authority's problem definition

The Authority's problem definition identifies the issues that, in its view, invoke the need for regulatory intervention to promote its statutory objective.

In reflection of the focus of its statutory objective on efficiency, the Authority identifies a range of inefficiencies that it says have arisen from the current approach to connection charges. These proposed inefficiencies include:[18]

- a trend towards higher connection charges;
- inefficiently low connection charges;
- inconsistent approaches across distribution businesses;
- poor co-ordination;
- wealth transfers due to methodology changes; and
- difficulty resolving disputes.

3.2.1 Trend towards higher charges

Core aspects of the Authority's proposal are shaped by the outcomes that it says could be arising from an observed trend towards higher connection charges. The Authority identifies a range of 'influences' or incentives that could underpin the trend towards higher connection charges.

Of the incentives identified by the Authority, the most marked is likely to be an incentive to reduce net capital expenditure and improve incentive payments using the Commerce Commission's incremental rolling incentive scheme (IRIS).[19]

The Authority observes that:[20]

> For non-exempt distributors, increasing connection charges reduces net capital expenditure, which generates an incentive payoff. Because all regulated capex can be substituted, distributors can also increase connection charges to offset cost overruns in any part of their capex programme.

[17] Consultation paper, para 3.2 and footnote 7.

[18] Consultation paper, para 5.1 and 5.4

[19] Consultation paper, para 5.3(c)(i).

[20] Consultation paper, para 5.3(c)(i).

> At the margin, this amounts to the same outcome, which is increasing connection charges improves incentive outturn.

The Authority provides no evidence that this incentive has been acted upon by distributors. Such evidence could be gleaned from the extent to which outturn connections and connection expenditure exceeded the forecast values that underpinned its regulatory proposal. A general increase in connection charges through time is not sufficient evidence to conclude that, once a regulatory period commenced, distributors are increasing connection charges above the level that was previously forecast so as to generate an incentive payoff.

The Authority also points to limited incentives for distributors to control capital expenditure on connections when they are funded with capital contributions, since these expenditures typically fall outside the scope of the IRIS and may be passed onto access seekers at cost.[21] However, it presents no evidence that inefficient expenditure has contributed to the rise in connection charges.

The Authority explains that a trend towards higher connection charges:[22]

> …risks deterring new connections and weakening distributor incentives to ensure costs are efficient.

However, the Authority identified no evidence of connections that, in its view, are efficient but are not proceeding under the existing arrangements.

3.2.2 Inefficiently low connection charges

Although the Authority's proposed regulatory intervention does not include any explicit measures targeted at addressing this problem, it does note that some distributors have extremely low connection charges.[23]

The Authority observes that extremely low connection charges can risk cross-subsidy from existing users to new users, ie, inefficient connection. However, it does not provide any empirical examples of connection charges that are less than the incremental cost of connection.

3.2.3 Inconsistency across distributors

The Authority observes that there is significant variation across distributors in how they set and communicate connection charges.[24]

It acknowledges the reasons for which different methodologies may be appropriate, buts says that the existing differences are 'excessively high'.

It is unclear by reference to what level of consistency the Authority deems the current variation to be excessive, but it could be by reference to its view that there is significant consistency in jurisdictions such as Australia, which we explain is not an accurate representation of the Australian landscape in section 6.1.

The Authority asserts that this results in:[25]

- barriers to staff mobility between distributors; and
- increases costs for access seekers, their advisors and suppliers associated with 'learning, uncertainty and unpredictability'.

[21] Consultation paper, para 5.4(c)(iii).
[22] Consultation paper, para 5.1(a).
[23] Consultation paper, para 5.4(b).
[24] Consultation paper, para 5.1(b).
[25] Consultation paper, para 5.4(a).

The Authority does not present any evidence in support of these potential implications, or their materiality.

3.2.4 Poor co-ordination

The Authority also cites more complex efficiency concerns, namely:

- 'position in queue' dynamics, whereby connection charges vary depending on the timing of an application, giving rise to unpredictable and uncertain pricing, demand being turned away by high charges and/or encouraging costly conduct to gain a better position in the queue;[26] and
- 'piecemeal network development' arising from reliance on connection activity to fund investment, which the Authority states raises barriers for a distributor to proactively invest in capacity ahead of demand and could therefore increase network costs over time.[27]

Again, the Authority does not present any evidence of 'piecemeal network development' under regulatory framework administered by the Commerce Commission, or that 'position in queue' dynamics have precluded efficient connections.

3.2.5 Wealth transfers

The Authority says that methodological changes that increase connection charges, but without offsetting reductions to ongoing distribution charges for those new customers, result in 'wealth transfers'.[28] It does not explain from where or by reference to what counterfactual this transfer occurs.

It says that these wealth transfers compound the problem associated with the trend towards higher connection charges, which appears to be a reference to how connections could be discouraged by higher total costs – ie, connection costs and ongoing distribution charges – rather than as a consequence of some wealth transfer.[29]

3.2.6 Difficulty resolving disputes

The Authority says that due to variation in approaches across distributors – which it also highlights as a distinct inefficiency – access seekers may find it difficult to understand connection offers and:[30]

> …may not always have clear and complete requirements against which they can raise a dispute, and often do not have access to low-cost dispute resolution outside bilateral negotiation with the distributor.

No evidence is presented in support of insufficient access to dispute resolution, or that it has any effect on efficient connection.

3.3 Our observations

In this section we comment briefly on the problems or 'inefficiencies' by reference to which the Authority seeks to justify regulatory intervention.

3.3.1 No evidence of inefficiency

The identification of problems at the level of principle – or in theory – is a defining feature of the Authority's justification for regulatory intervention.

[26] Consultation paper, para 5.4(d)(i).
[27] Consultation paper, paras 4.24 and 5.4(d)(ii).
[28] Consultation paper, para 5.1(e).
[29] Consultation paper, para 5.1(e).
[30] Consultation paper, para 5.4(e).

We agree with many of the in-principle observations set out by the Authority, eg, inefficiency can arise from connection charges that are:

- too high – but specifically, above opportunity cost for the access seeker; or
- too low – but specifically, below the incremental cost of connection.

However, absent from every aspect of the Authority's problem definition is empirical evidence of any inefficiency, ie, that new connections are inefficiently high or low.

By way of example, the potential source of inefficiency that is most consequential for the Authority's proposed regulatory intervention is that increases in connection charges have prevented, or will prevent, efficient connection.

As a matter of principle, we agree that as connection charges increase above the incremental cost of connection, so too does the risk of preventing efficient connection, ie, by increasing the risk of exceeding the opportunity cost faced by the access seeker. However, we note also that similar, in-principle risks arise from reductions in connection charges, which increase the risk of falling below incremental cost.

Nevertheless, the Authority has not identified – nor apparently sought from distributors – any evidence of connections that may have been efficient, but that did not proceed.

The only empirical evidence presented by the Authority illustrates increases across the sector over time in:[31]

- the total value of capital contributions; and
- the value of capital contributions relative to other categories of capital expenditure.

That capital contributions are higher (or lower) than in prior years falls significantly short of establishing inefficiency or, more specifically, that efficient connections are not proceeding.

Further, the Authority has no regard to the reasons for which it might be appropriate for connection charges to increase, eg, to protect existing customers from bearing the risks associated with recovering the connection costs of risky new customers through distribution charges that are recovered over an extended period. We discuss these risks in section 4.2.2.

In our opinion, regulatory intervention justified by reference to casual, in-principle observation, absent any evidence of inefficiency, falls significantly short of establishing grounds for material regulatory intervention by reference to the Authority's statutory objective.

We note also that the Authority identifies potential 'transfers of wealth' between new and old customers as sources of 'inefficiency'.[32] Matters to do with the distribution of wealth reflect equity considerations and are not reflected in the Authority's statutory objective.

[31] Consultation paper, paras 4.26, 4.27 and 4.28.

[32] Consultation paper, para 5.1(e).

3.3.2 Transaction costs

The Authority says that transaction costs[33] are another source of inefficiency.[34]

The Authority proposes that transaction costs arise from excessive inconsistency in how distribution businesses set and communicate connection charges and that, in turn, this creates costs for access seekers, eg, as associated with 'learning'.[35]

Again, the Authority presents no evidence in support of the existence, materiality or consequence of these transaction costs.

It also has no regard to the transaction costs likely to arise from regulatory intervention that spans multiple years[36] and precipitates:

- a process of standardisation across non-exempt distribution businesses, eg, to overhaul their internal processes; and
- the potential reopening of distribution price paths administered by the Commerce Commission.

On the Authority's in-principle logic, regulatory intervention should also be instigated to prevent potential transaction costs associated with inconsistency in pricing elsewhere in the electricity sector, eg, as between its proposed reforms and Transpower's connection charge methodology, since large customers will likely also be contemplating transmission connection as an alternative.

It is unclear on what basis the Authority determined that those customers that would engage with connection price methodologies from multiple distributors – who are very likely to be large, sophisticated customers – are not capable of understanding differences between those methodologies. It is also not clear why this problem is only now emerging on the Authority's radar, particularly given that it is reasonable to expect that the rise in electrification projects likely involves relatively sophisticated proponents.

The Authority also proposes that transaction costs for connection applicants could arise because they:[37]

> …may not always have clear and complete requirements against which they can raise a dispute, and often do not have access to low-cost dispute resolution outside bilateral negotiation with the distributor.

Again, the Authority presents no empirical evidence of this problem or that, even if it was made out, it prevents efficient connection.

3.3.3 Electrification and decarbonisation

Decarbonisation of the New Zealand economy through electrification receives relatively little attention in the Authority's formal problem definition. However, in contrast, this process receives significantly more focus in the Authority's framing of its proposed reforms.

[33] Perloff (2012) explains that transaction costs are 'the expenses of finding a trading partner and making a trade for a good or service other than the price paid for that good or service. These costs include the time and money spent to find someone with whom to trade.' See: Perloff, J M, *Microeconomics*, Addison-Wesley, Boston, 2012, p 36.

[34] Consultation paper, paras 5.4(a) and 5.6.

[35] Consultation paper, para 5.4(a)

[36] Consultation paper, Figure 6.1.

[37] Consultation paper, para 5.4(e).

The Authority explains that the current arrangements: [38]

> …risk slowing down New Zealand's electrification; and businesses and consumers, the economy and the environment lose out on the benefits it brings.

The Authority says that its proposed reforms, in turn, therefore:[39]

> …aim to facilitate the timely and efficient investment in electrification of businesses, transport and industrial processes, which over time, benefits all New Zealanders.

This implied focus on electrification may also be balanced towards large-scale projects, in reflection of the Authority's observation that:[40]

> Many households (and smaller businesses) can electrify without needing to alter their connection...
>
> For most other electrification investments, network costs are a material input cost component that can alter the viability of decarbonisation. This includes electrification of public transport and shipping, public EV charge-points, fast charging at depots and workplaces, and process heat electrification.

It follows that there is a significant disconnect between the Authority's:

- underlying focus on a problem that is confined to the efficient connection of certain electrification projects; and
- its conclusion that connection charges are too high, generally, and its proposed reforms targeted at bringing down connection charges across-the-board.

The latter is likely to be an outworking of the Authority's sweeping assessment of 'potential' problems at the level of principle. It may also reflect the bounds of the Authority's statutory objective, which include no apparent remit to consider externalities such as decarbonisation.

The abovementioned disconnect is important context to the Authority's proposed reforms, since they improve the commercial viability of electrification project connections, but also all other connections, while at the same time inefficiently imposing risks on existing customers and driving inequities between existing and new customers.

In section 7 we discuss alternative tools available to the Authority that have the potential to improve the commercial viability of electrification projects without these shortcomings.

[38] Consultation paper, p 2.

[39] Consultation paper, p 2.

[40] Consultation paper, paras 10.7 and 10.8.

4. Authority's proposed full reform

In this section we describe the Authority's vision for full reform of distribution connection pricing by reference to three concepts, being the 'neutral point', the 'bypass point' and the 'balance point'. The Authority considers that prices between the neutral point and the balance point are likely to be 'most efficient'.

We explain that the Authority's specification of the neutral point involves bundling together the revenues from and costs of connection and distribution services, which has implications for efficient pricing and competition in the provision of connection services.

We also explain that the Authority's consideration of the balance point does not draw from any economic consideration of efficiency, and that there is no 'bright line' that establishes that connection charges above the balance point defined by the Authority would be inefficient. Rather, the Authority's consideration, and that of its consultant CEPA, in relation to the balance point, focuses principally on issues of horizontal equity as between connection applicants and existing customers.

4.1 Connection charges between the neutral and balance points

The full reform package canvassed by the Authority in its consultation paper has been developed with the aim of addressing the proposed problems described in section 3.2 above, in which the Authority asserts the existence of inefficiencies in distribution connection pricing.

The Authority's proposed full reform package is underpinned by its definition of three conceptual points at which connection charges might be set, ie:

- a '**neutral point**', where the combination of connection charges and ongoing distribution charges is equal to the incremental cost of providing the connection;
- a '**bypass point**' that is equal to the standalone cost of providing network services to a connection applicant; and
- a '**balance point**'; where the network costs recovered from a connection applicant over the life of their connection is similar to that from other customers within the same 'customer group'.

Of these terms, only the 'bypass point' concept is well understood in economics in terms of standalone cost – the terms 'neutral point' and 'balance point' appear to be entirely of the Authority's own innovation. Although the 'neutral point' is not a term of art to economists, its definition by the Authority does incorporate relevant economic concepts, such as incremental cost.

Each of the neutral, bypass and balance points can potentially be assessed for an individual connection. Indeed, we explain in Appendix A1 that the Authority's proposed fast-track measures require distributors to undertake a reconciliation for each connection that would involve an assessment of its neutral point and the extent to which connection charges exceed that level.

The Authority considers that the 'most efficient' charges are likely to be between the neutral point and the balance point.[41] It also explains that, if it proceeds to full reform, then it would adopt:[42]

> …a formula-based approach that provides for the setting of connection charges based on net incremental cost (ie, incremental cost less incremental revenue) plus a contribution to network costs, with the contribution required to be within a permitted range. This provides cost-reflective

[41] Consultation paper, para 7.66(c).

[42] Consultation paper, para 6.6(a).

pricing for connection applicants, while ensuring the benefits of connection growth are shared between newcomers and existing users.

Our understanding of the Authority's approach to full reform is that the 'permitted range' of contributions to network costs would be limited so that connection charges could not exceed the balance point.

We explain in more detail below the principles underpinning each of these points, as set out by the Authority in its consultation paper.

4.1.1 Neutral point

The Authority describes the 'neutral point' as the level at which connection charges plus the present value of expected future revenues from ongoing distribution charges equal the incremental cost of connecting a customer.[43] The Authority expresses this concept as 'net incremental cost', or:[44]

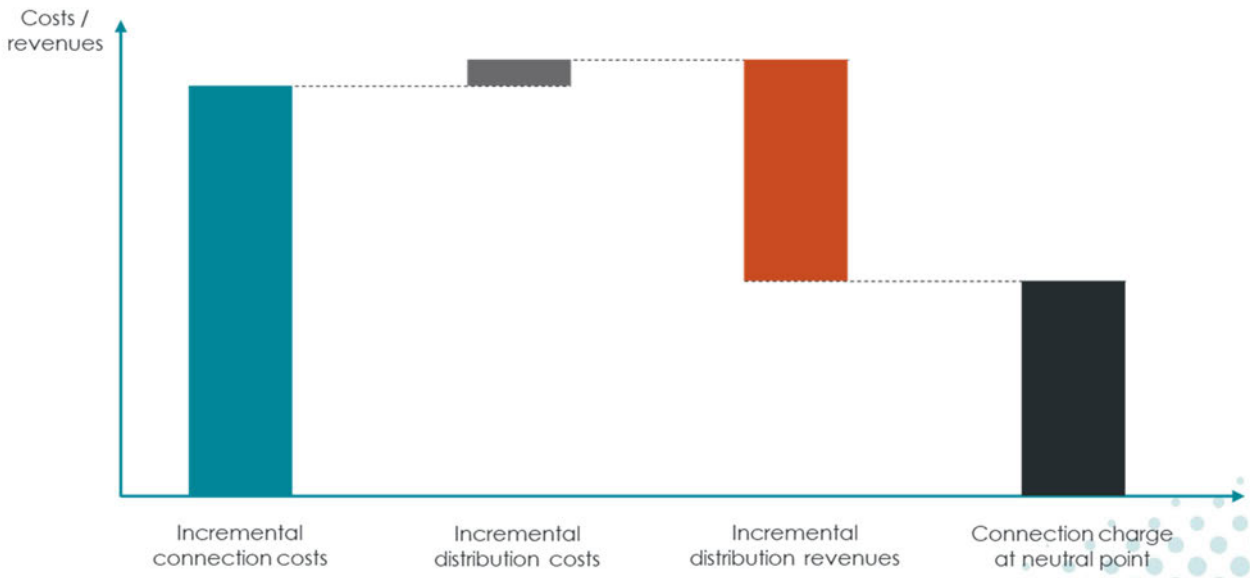
$$Connection\ charge\ =\ Incremental\ cost - Incremental\ revenue$$

In this equation, incremental cost and incremental revenue are defined as follows:

- incremental connection cost includes both:
  - the direct costs of constructing or upgrading a connection (ie, the extension costs); and
  - any required upgrades to the shared network capacity to facilitate the connection (ie, the capacity costs); and
- distribution revenue is the present value of expected revenue from ongoing distribution charges over the life of the connection, reduced by 10 per cent to reflect that new connections drive some incremental maintenance expenditure.[45]

Figure 4.1 demonstrates the elements entering the calculation of the neutral point, expanding on the equation above.

Figure 4.1: Demonstration of calculation of the neutral point



[43] Consultation paper, paras 7.57-7.60.

[44] Consultation paper, paras 7.57, 7.59 and 7.60.

[45] Consultation paper, para 7.75(d).

In figure 4.1 we have drawn the incremental connection costs as being larger than the present value of incremental distribution revenues. However, there may be a range of potential scenarios, including:

- low cost connections in which the incremental connection costs are small compared to the present value of incremental distribution revenues, so that no connection charge could be levied at the neutral point; or
- high cost connections in which the incremental connection costs are substantially greater than the present value of incremental distribution revenues, so that a material connection charge could be levied at the neutral point.

The Authority explains that, when connection charges are set at the neutral point, existing customers are made neither better nor worse off from a new connection, since the combination of upfront and ongoing charges exactly covers the costs imposed by that connection.[46]

4.1.2 Bypass point

The Authority describes the 'bypass point' as the level at which the payments a connection applicant will make over the life of their connection would exceed the standalone cost for that connection applicant.[47] The standalone cost refers to the cost of establishing a dedicated connection to the transmission grid or implementing a self-supply solution.

The Authority notes that:[48]

- for smaller users connected at the fringe of the network, the standalone cost is typically very high;
- for large users located near a grid exit point, the standalone cost can become a more relevant consideration; and
- where self-supply solutions like solar and batteries are considered, some adjustment must be made for inevitable trade-offs in flexibility and reliability compared to network-based solutions.

4.1.3 Balance point

The Authority describes the 'balance point' as the level at which the total contribution to network costs that a connection applicant will make over the life of their connection (through both upfront charges and ongoing distribution charges) is similar to that made by existing customers in the same consumer group.[49]

In other words, the network contribution over and above the net incremental cost of the connection, is similar to the network contribution over and above net incremental costs made by similar types of users (eg, residential and small commercial, commercial, or large commercial/industrial).[50]

It follows that the balance point depends on a range of network and consumer group-specific factors, including:[51]

- historical contribution policies;
- average incremental costs;
- network age;
- the residual revenue allocations used in tariff setting; and

[46] Consultation paper, para 7.58.
[47] Consultation paper, para 7.62.
[48] Consultation paper, para 7.62.
[49] Consultation paper, para 7.61.
[50] See Consultation paper, para 7.68, footnote 55.
[51] Consultation paper, para 7.68.

- variations among individual consumers within a consumer group.

4.2 'Neutral point' raises challenges for efficiency and competition

The Authority's use of the 'neutral point' as the lower bound for its range of preferred connection charges raises challenges for both economic efficiency and competition. We explain in this section that pricing connection services at the neutral point reflects pricing below the incremental cost of connection services, which in turn:

- transfers risks to from connection applicants to existing customers; and
- deters competition for connection services.

We explain the basis for these findings below.

4.2.1 Neutral point reflects pricing below the incremental cost of connection services

The Authority's implementation of efficiency principles through the lens of the 'neutral point' results in its lower bound for connection charges being below the incremental cost of connection services.

An important distinction between the economic principles that we discuss in section 2 above, and the Authority's application of similar economic principles, is that the Authority applies this theory not to connection services, but to the combination of connection and distribution services. For example, the Authority's application of the incremental cost concept, which it calls the 'neutral point', is based on incremental connection costs, less the present value of expected future distribution revenues. In this calculation, the expected future distribution revenues are reduced by 10 per cent to reflect the concept that new connections drive incremental maintenance expenditure.[52]

The purpose of defining the incremental cost this way appears to reflect the Authority's implicit view that the incremental cost concept should be applied across the combination of connection and distribution services, rather than just to the connection service. That is, the Authority effectively defines the neutral point as occurring where:

$$\begin{aligned} &Revenue\ from\ connection\ services + Revenue\ from\ distribution\ services \\ &\quad = Incremental\ costs\ of\ connection\ services \\ &\quad + Incremental\ costs\ of\ distribution\ services \end{aligned}$$

The Authority does not directly explain the basis for this approach – other than by reference to an observation that existing customers are not made worse off at the neutral point.[53] However, it has significant implications for the pricing of connection services and for competition in connection services.

The Commerce Commission's approach to the regulation of distributors tends to allow revenues from distribution services that are substantially higher than their incremental costs. This reflects the Commission's approach to the setting of revenue allowances, which includes a return on and of sunk distribution assets. This observation is consistent with the Authority's suggestion that the incremental cost of a new connection on distribution services is, on average, 10 per cent of revenue.

It follows from these facts that the Authority's approach to combining revenues and costs from these services in its definition of the neutral point allows the connection charge to be materially below the incremental cost of providing the connection service. This can be demonstrated by rearranging the equation for the neutral point, ie:

[52] Consultation paper, para 7.75(d).

[53] Consultation paper, para 7.58.

$$\begin{aligned} &Revenue\ from\ connection\ services \\ &\quad = Incremental\ costs\ of\ connection\ services \\ &\quad - (Revenue\ from\ distribution\ services - Incremental\ costs\ of\ distribution\ services) \end{aligned}$$

That is, because revenue from distribution services exceeds the incremental costs of distribution services, the revenue from connection services at the neutral point can be commensurately below the costs of connection services.

The pricing of connection services materially below their incremental costs has significant disadvantages for economic efficiency.

Pricing connection services at less than their incremental cost, when these incremental costs are almost entirely incurred as upfront payments, may result in a substantial transfer of risk from connection applicants to existing users of the distribution network. Further, because the ability to price connection charges below their incremental costs is only achievable by the distributor, this will be likely to eliminate the prospects for competition in relation to services priced on this basis. We explain the basis for these observations in more detail below at sections 4.2.2 and 4.2.3.

We also explain that there are potential allocative efficiency advantages from the use of price discrimination in setting total charges. However, these efficiency advantages will be better achieved, with fewer negative implications, with price discrimination on distribution charges, rather than connection charges, which we discuss in section 7.1.

An advantage is that this approach to pricing may allow a distributor to offer total charges (connection and distribution charges) closer to their incremental costs than would otherwise be the case. In principle, if the neutral point is set as a floor, giving a distributor the flexibility to set prices at that level, then it allows potential to provide an electricity service to a larger number of customers than would otherwise be the case. However, we explain in 4.2.4 that these allocative efficiency gains can also be achieved with price discrimination on distribution services, without pricing connection services at less than their incremental cost.

4.2.2 'Neutral point' transfers risk to existing customers

We understand that the incremental cost of providing connection services (whether these costs are extension costs or capacity costs) are almost entirely upfront. Similarly, connection charges are also upfront.

Where connection charges fall below the incremental cost of providing a connection service, the residual upfront cost of providing the connection service must be recovered by some other means.

The Authority's approach to defining the neutral point indicates that this residual upfront cost can be recovered from the connection applicant through expected future distribution revenues, which are assumed to be much higher than the incremental cost of providing the distribution service. The Authority proposes that the expected future revenues would be discounted to a present value:[54]

- over a connection revenue life of 30 years for residential connections and 15 years for other connections; and
- at a discount rate based on the Commission's most recent annual cost of capital determination.

In effect, this present value of expected revenues acts like a rebate for expected future revenues, payable in advance. That is, the Authority envisages that for connection charges that fall between the neutral point and the incremental cost of connection:

- the connecting party's connection charge will reflect a discount from the incremental cost of its connection that is based on its expected future distribution charges, but applied *before* these charges are payable to the distributor; and equivalently

[54] Consultation paper, para 7.75(c).

- the distributor will incur the incremental costs of connection *before* being able to recover the residual part of these costs in distribution charges from the connecting party.

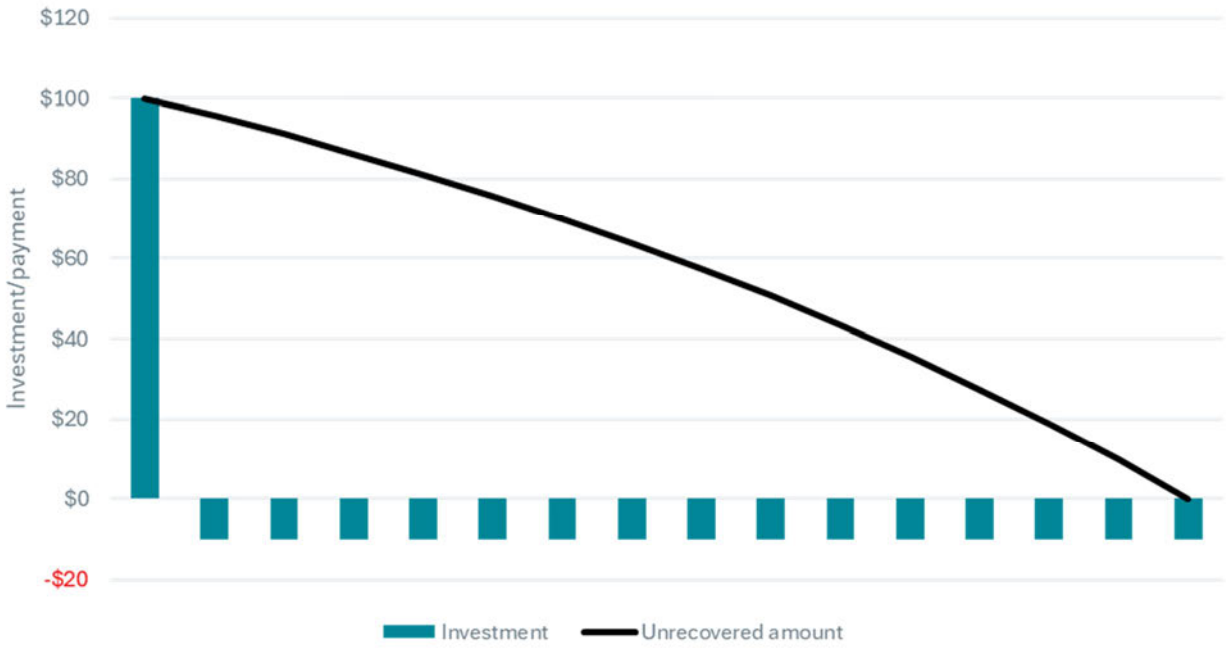
For example, figure 4.2 illustrates the recovery profile of an upfront connection cost of $100, recovered over an assumed connection revenue life of 15 years at a rate of return of six per cent. With these parameters, an annual contribution from distribution charges of $10.30 would be required to pay back the connection cost over this period.

The cashflows to the distributor are shown with the teal bars, indicating:

- the upfront payment of $100 to provide the connection for the applicant; and
- the receipt of annual payments of $10.30 through ongoing distribution charges on the applicant.

The black line shows the unrecovered cost of the connection over time, beginning at $100 and falling to zero over 15 years.

Figure 4.2: Recovery profile of upfront connection costs over time



This profile of recovery imposes a transfer of risk from the connecting party to existing customers of the distributor, relating to the tenure of the connecting party as a customer of the distribution network. If the connecting party discontinues its electricity distribution service before the assumed connection revenue life, then:

- the revenues collected from the connecting party may not be sufficient to return the residual part of the upfront cost that it did not pay for in its upfront connection charges; and
- any unrecovered costs would either be borne by the distributor, or socialised and recovered from other users through higher distribution charges.

This transfer of risk reflects connection charges that are inefficiently low. This is particularly the case for commercial or industrial customers who face a very uncertain business proposition, such that there is a significant prospect that they may not continue to operate over the assumed connection revenue life.

Offering such connection applicants a discount below the incremental cost that their connection imposes on the network, based on the expectation that their business will remain successful over a period of 15 years, amounts in substance to a form of unsecured capital funding, similar to debt, provided by customers of the distribution network. It mitigates the upfront capital investment that shareholders must provide, in return for ongoing payments over 15 years, with these payments assessed at the regulatory rate of return.

However, the risk faced by such connection applicants is likely to be much greater than the risks that are compensated for by the regulatory rate of return. In a competitive market to provide funding to such businesses, it appears very unlikely that they would be able to source debt funding at the regulatory rate of return. The opportunity to pay connection charges that are lower than incremental costs, and as low as the neutral point, would therefore be commercially very attractive, particularly for connection applicants for whom the cost of their electricity supply is a substantial part of their overall costs.

It follows that connection charges set below the incremental connection cost in the manner proposed by the Authority may give rise to two forms of inefficiency, ie:

- inefficient connection decision-making by connection applicants, who may decide to connect when it is not efficient for them to do so, because connection pricing below the incremental connection cost artificially lowers their risk profile; and associated with this
- inefficient business decision-making by connection applicants, who may proceed with an investment that delivers profits only because of the transfer of risk onto distributors and other electricity customers.

We explain in section 6.4 how the Australian regulatory system addresses the prospect for risk transfers when applying the conceptually similar 'cost-revenue test'.

4.2.3 Pricing below incremental cost deters competition for connection services

The promotion of competition in the electricity industry is one of the limbs of the Authority's statutory objective that we discuss at section 2 above.[55]

Competition in the provision of electricity distribution services is presumed to be infeasible because of the natural monopoly characteristics of electricity distribution networks. However, competition can take place for the provision of electricity connection services. Competition in the provision of connection services occurs when third party service providers can compete against distributors to install connection assets.

In some jurisdictions, such as Australia, there is robust competition for the provision of connection services. We understand that competition in the provision of electricity connection services in New Zealand is nascent, but does occur across some distribution networks, such as Orion's. On Vector's network, we understand that competition may take place to some degree, for example in relation to civil works on a customer's premises, which a customer may undertake at its own expense, or potentially within embedded networks.

Competition in the provision of connection services is promoted where third party service providers can compete against distributors on their own merits, so that customers can select the provider that undertakes these services at least cost.

In our opinion, the Authority's current vision of its full reform would significantly reduce the scope for competition in connection services to develop in New Zealand. This effect would arise where the Authority allows or requires distributors to set connection charges at levels below their incremental cost.

Prices below incremental costs are not consistent with outcomes that would be achieved in a competitive market for connection services. Connection charges below incremental cost can only be sustained by distributors where lower connection charges for a connecting party are either:

[55] Electricity Industry Act 2000, cl 15(1).

- part of a bundle of connection and distribution services, with the difference being made up in higher distribution charges; or
- funded by higher connection or distribution charges on other customers.

The ability to cross-subsidise connection charges through ongoing distribution charges is not available to third party service providers. A third party service provider cannot charge some customers more than incremental cost to fund connection charges that are lower than incremental cost, since this approach will see it retain the low-priced customers and lose the high-priced customers to competitors.

The Authority concedes that there may be circumstances in which its proposal could raise barriers to competition, ie:[56]

> …connection works that include vested assets are more likely to result in a negative connection charge – ie, where the incremental revenue exceeds the incremental cost and contribution to network costs. To support contestability in such cases, distributors should make a payment to the applicant (or their contractor).

In our view, the harm to competition will arise in a wider range of circumstances than contemplated by the Authority. It does not require a negative connection charge to raise barriers to competition – only for the connection charge to fall below incremental costs, being those that are achievable by a third party service provider.

The Authority's proposal to address the potentially harmful effects of competition resulting from the pricing of connection services below incremental cost appears to be for distributors to make payments for the difference to the connection applicant or their contractor.[57]

It is unclear to us whether this proposal is a fundamental component of the Authority's full reform. The concept of distributors making upfront payments to connecting customers (or their connection service providers) to reflect the present value of future distribution revenues appears to be one that is theoretical and untested. This proposal would raise many practical considerations as to its implementation, including how these payments would be or should be treated by the Commission's regulatory framework.

For the reasons that we set out in section 4.2.4 below, there are other ways to achieve similar outcomes, but without harm to competition, through the use of discrimination in distribution pricing rather than connection pricing.

4.2.4 Improve allocative efficiency through distribution pricing

One potential view of the Authority's proposal to allow connection prices as low as the neutral point is that it allows the total of connection and distribution charges to be as low as their combined incremental cost, consistent with our explanation of the neutral point in section 4.2.1.

Allowing the pricing of services as low as incremental cost can give rise to allocative efficiencies for the reasons that we discuss in section 2.1.1 above. This may be allocatively efficient if:

- it is necessary to charge as low as incremental cost to some customers is required because their opportunity cost is very low; and
- it is feasible to set higher charges for other customers such that the overall allowed revenue set by the Commerce Commission is still recoverable.

This is price discrimination, which is well-accepted by economists as promoting allocative efficiency where common costs exist.

[56] Consultation paper, para 7.160(b).

[57] Consultation paper, para 7.160(b).

However, the Authority casts doubt on the capability of distributors to achieve these allocative efficiencies through effective price discriminate. In particular, the Authority asserts that:[58]

> In practice:
>
> (a) distributors cannot tailor charges to each newcomer's willingness to pay. Distributors do not have this information, this approach would be unpopular as it would exacerbate coordination challenges and reduce transparency, and make pricing inefficiently difficult to predict and administer
>
> (b) likewise, distributors cannot assess the relative elasticity of newcomer connection demand versus existing user demand

In our opinion, the Authority fundamentally understates the achievability and desirability of price discrimination in setting charges for connection and distribution prices. Distributors do not have perfect insight into their customers' willingness to pay, but through negotiations develop an understanding of the commercial position of their most significant customers. This understanding would be sharpened still further where distributors' profitability depends on their ability to connect customers and to discriminate effectively on price – see our alternative reform option at section 7.3 below.[59]

Instead, the Authority proposes the application of a form of regulated price discrimination, whereby new connection applicants are required to receive connection charges that are at or below the balance point and as low as the neutral point.[60] This amounts to price discrimination because existing customers will be paying connection charges that are, on average, consistent with the balance point. Further, the ability of distributors to discriminate within this range will still determine the extent to which this proposal can promote allocative efficiency.

If price discrimination is achievable, then economic principles better support its application to distribution charges rather than connection charges. This is because:

- connection costs are wholly comprised of incremental costs; whereas
- distribution costs exhibit significant economies of scale, with incremental costs likely to be much lower than typical distribution charges.

These characteristics suggest that discrimination in relation to distribution charges can be achieved without the setting of prices below incremental cost, which gives rise to the shortcomings that we discuss at sections 4.2.2 and 4.2.3 above.

Figure 4.3 below illustrates this situation, by way of comparison between:

- the cost structure for connection and distribution services, indicated in the teal and grey bars at the top of the chart by reference to their incremental and average costs; and
- the charge structure for connection and distribution services, as proposed by the Authority and in the alternative where price discrimination is on distribution charges, rather than connection charges, indicated in the black and tan bars at the bottom of the chart.

Figure 4.3 highlights that the Authority's proposed charge structure seeks to reach the neutral point by setting connection charges that are set lower than the incremental cost of connection. However, the neutral point can also be reached by setting connection charges and distribution charges respectively that are in line

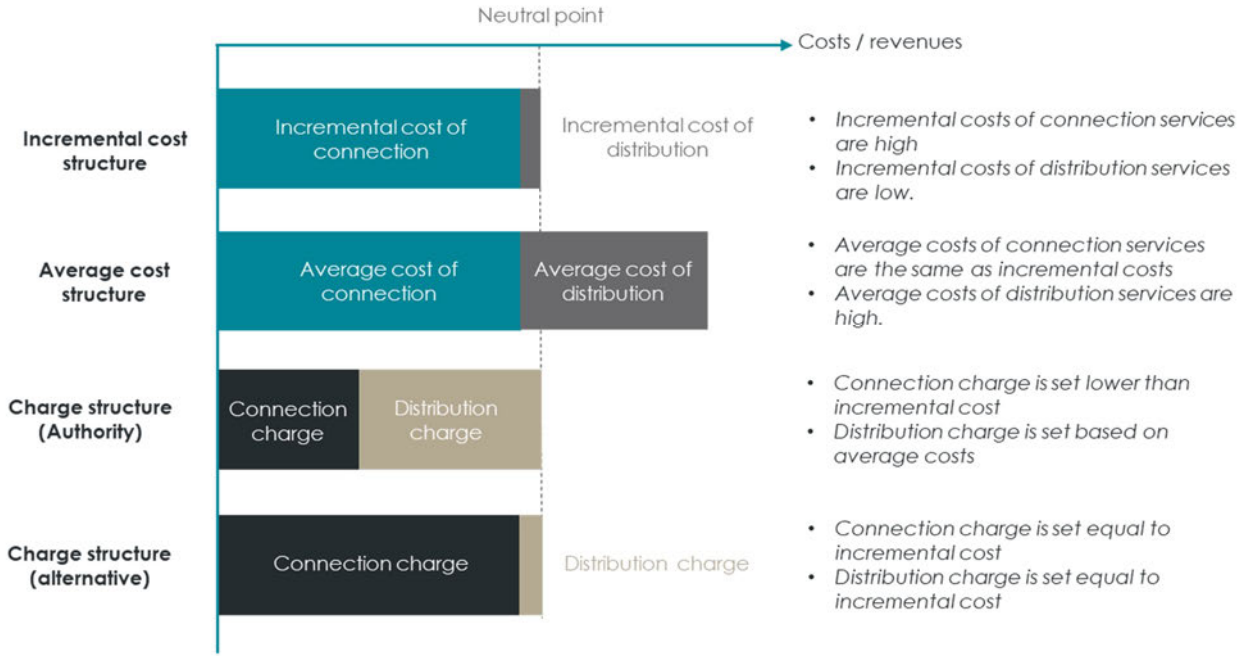
[58] Consultation paper, para 7.66(a)-(b).

[59] For example, we have observed this understanding in our work for both electricity and gas distribution businesses in circumstances where such businesses face commercial incentives to connect new customers.

[60] Consultation paper, para 7.66(c).

with their incremental costs – an outcome with much better efficiency properties than the Authority's proposal.

Figure 4.3: Alternative approaches for the implementation of price discrimination



4.3 'Balance point' does not reflect efficiency considerations

The Authority's approach to the consideration of economic efficiency focuses principally on the issue of allocative efficiency, reflected in its use of the 'neutral point' and the 'bypass point' as bookends of the range of efficient prices.

In its May 2024 paper on distribution pricing reform, the Authority expressed a preliminary view that the 'most efficient upfront charges will be toward (or at) the neutral position'. This reflected the Authority's opinion that connection applicants might be more sensitive to connection and distribution charges than existing customers are to changes in their ongoing distribution charges.[61]

The Authority's introduction of the 'balance point' concept in its consultation paper represents a change in approach. The balance point is introduced as being where:[62]

> …the contribution a connection applicant will make to network costs over the life of their connection is commensurate with other users from the same consumer group.

The balance point is central to the Authority's views about connection pricing that it expresses in the consultation paper. In this section, we review the Authority's use of these terms and the conclusions that it reaches about economic efficiency. We explain that the Authority's preference for the balance point as the ceiling of a reasonable range of connection charges does not reflect efficiency considerations, and instead reflects a preference for equity as between connection applicants and existing electricity customers.

[61] Electricity Authority, *Distribution pricing reform: next steps*, 7 May 2024, p 15.

[62] Consultation paper, para 7.61.

4.3.1 Authority's propositions about efficient connection pricing

The Authority makes a number of propositions about efficient connection pricing, which are summarised at paragraph 7.63 of its consultation paper, ie:

> The Authority considers:
>
> (a) connection charges below a connection's neutral point are inefficient, because existing users are subsidising the new connection.
>
> (b) connection charges above a connection's bypass point are inefficient, because the connection applicant would be better off inefficiently bypassing the network.
>
> (c) connection charges between the neutral and bypass points are within the subsidy-free range for that connection.
>
> (d) connection charges above the balance point can be inefficient as they allocate connection applicants a higher lifetime cost than existing users from the same consumer group. This may in turn suppress connection growth.
>
> (e) connection charges between the neutral and balance point are beneficial to existing users, without inefficiently penalising connection applicants.

When referring generally to 'efficiency' or 'inefficiency' in these points, the Authority appears to refer to allocative efficiency, not other dimensions of efficiency that might also be affected by connection pricing.

We agree with the Authority that conventional economic theory holds that prices below incremental cost and above the bypass cost are inefficient, and that prices within this range are subsidy-free.[63] However, we disagree with the Authority's apparent view that the 'balance point' occupies a role in determining the prices within this range that are efficient.

Specifically, as the Authority explains, the balance point reflects a connection charge that results in the connection applicant bearing a similar lifetime cost for its combined connection and distribution services as existing users from the same consumer group. The balance point is not defined by reference to the willingness to pay or the opportunity cost of members of that consumer group.

The Authority's propositions (d) and (e) suggest otherwise, raising the concept of the balance point as a tipping point, above which connection growth may be inefficiently suppressed, and below which existing users benefit without such inefficiency. The balance point does not have any such role.

To the extent that distributors are required to set connection charges and distributions charges on the same basis to all members of a customer group, then any connection charge above the neutral point *could* potentially cause some connections to be supressed. The higher that such charges are set, the more connections may potentially be supressed. These considerations again highlight the importance of price discrimination to the achievement of allocative efficiency in distribution pricing.

There is no 'bright line' at the balance point that determines this as the logical boundary for such considerations.

4.3.2 Balance point reflects equity considerations

Our responses to the Authority's propositions about efficient connection pricing highlight that although the Authority's consideration of the balance point references *efficiency*, the key principle motivating the role of the balance point in the Authority's framework for connection charges is not efficiency, and appears to be

[63] We explain in section 4.2that the formation of a lower bound for connection charges by reference to the combined incremental costs of connection and distribution services, implied by the Authority's 'neutral point', give rise to potential inefficient risk transfers and raises barriers to competition for connection services.

equity. This is reflected in various statements made by the Authority in its consultation, which highlight the consequences of setting connection charges above the balance point.

For example, the Authority explains that setting connection charges at the neutral point may be optimal but that:[64]

> …this involves newcomers avoiding costs or underpaying for costs that are covered by existing users, which may be unpopular and unsustainable.

This statement highlights that the Authority's rationale for allowing connection charges above the neutral point appears to extend beyond considerations of efficiency, and embraces considerations such as 'popularity'.

The Authority identifies the range as between the neutral point and the balance point by reference to a range of factors reflecting broader societal needs and equity considerations:[65]

> …setting charges somewhere between the neutral and balance points is likely most efficient, with the lower end better supporting electrification, housing growth and business growth, and the upper end better supporting affordability for existing users.

Although the Authority cites economic efficiency in the quote above, it introduces no concepts that support its use in this context.

The Authority also cites CEPA as indicating support for its vision for full reform, including the role of the balance point.[66] CEPA states that:[67]

- connection charges should be set between incremental cost and standalone cost, where incremental cost is the Authority's 'neutral point'; and
- the balance point arises because for fairness and horizontal equity reasons it makes sense to treat similar customers similarly.

Although CEPA goes on to state that connection charges between the neutral point and the balance point will help to ensure that connecting customers only pay an efficient price for connection, it does not otherwise explain the particular role of the balance point in capping this range.

[64] Consultation paper, para 7.64.

[65] Consultation paper, para 7.66(c).

[66] Consultation paper, para 9.15.

[67] CEPA report, p 30.

5. Implications for Authority's fast-track proposals

The Authority's vision for its full reform is supported by its fast-track proposals, some of which provide 'stepping stones' towards the full reform, in particular:

- the Authority's proposal to place reliance limits on capital contributions that distributors may seek from connection applicants; and
- the Authority's proposal to require reconciliation of its charges to the net incremental cost (or neutral point) of each connection service.

To the extent that these elements of the Authority's fast-track proposals are included to underpin or reinforce its vision for full reform, it is important that the assessment of these elements also considers this overall context. Although the Authority's vision for full reform is not well defined at this time, there is enough information available from the Authority's consultation paper to raise significant concerns about the economic merits of this end goal, as we set out at section 4 above, and therefore for these intermediate steps.

In this section, we explain how these elements of the Authority's fast-track proposals are linked to the concerns that we raise about the economic merits of the full reform.

5.1 Reliance limits on capital contributions

The Authority's proposal for reliance limits would place restrictions on the extent to which a distributor can seek capital contributions from load customers to fund connections and system growth. The reliance limit is expressed as a ratio of connections and system growth expenditure.[68]

The reliance limit applying to a distributor would be the lesser of:[69]

- its reliance on capital contributions for the year ended 31 March 2024; or
- 47 per cent, which is the Authority's estimate of average capital contributions across New Zealand distributors for the year ended 31 March 2024.[70]

This reliance limit would apply only to typical connection activity. It would exclude consideration of connections that are outliers and which have a material impact on the distributors reliance on capital contributions.[71]

A distributor must make its best endeavours to ensure that its policy or methodology for determining capital contributions is unlikely to result in exceedance of its reliance limit.[72]

The Authority describes its reliance limit as a 'safeguard against distributors increasing their reliance on up-front charges' and preventing distributors from 'setting inefficiently high connection charges'.[73]

These comments appear to draw from the Authority's views that high or increasing reliance on capital contributions is inefficient, and that connection charges below the balance point are more likely to be

[68] Proposed Code amendment, s 1.1(1), definitions of 'capital contribution reliance', 'capital contribution reliance for load' and 'capital contribution reliance limit for load'.

[69] Proposed Code amendment, s 6B.7(2).

[70] Consultation paper, paras 7.84-7.90.

[71] Proposed Code amendment, s 1.1(1), definition of 'typical connection activity'.

[72] Proposed Code amendment, s 6B.7(1).

[73] Consultation paper, p 5.

efficient. That is, the proposed reliance limits appear to draw their conceptual foundation from the Authority's views about efficient connection pricing that underpin its vision for full reform.

However, these views are not well-founded, either in fact or in economic principle.

We explain the basis for economically efficient pricing in section 2.1. The reliance limit is not directed at the key elements of economically efficient pricing because:

- it does not place any lower bound on connection charges, let alone a lower bound based on the incremental (or 'avoidable') cost of facilitating the connection; and
- the upper bound that it places on connections charges has no relationship to either the standalone cost of facilitating a connection or the opportunity cost of a connection, rather it reflects concerns regarding equity as between existing users and new users of the network.

We explain in section 3 above that the Authority's problem definition asserts concerns about the efficiency of connection charges, but does not substantiate these by reference to examples of inefficient connection decisions. Although the Authority observes that connection charges may be too low or too high in principle, it offers no well-reasoned basis against which to conclude that the connection charges applied by any distributor might be inefficiently high, because:

- no evidence is presented that any distributor is setting connection charges at inefficient levels and the Authority's proposed reliance limit is not linked to any measure relating to economically efficient connection charges; and
- the balance point concept proposed by the Authority provides no information about efficient connection charges.

It follows from these observations that there is no clear economic underpinning for the Authority's proposed reliance limits.

Despite this, the Authority contends that relance limits will prevent distributors with high reliance on capital contributions from further increasing capital contributions, potentially to inefficient levels.[74]

The Authority also contends that reliance limits will preserve scope for increases in up-front charges on networks with low reliance levels.[75] We agree that it may be efficiency enhancing for such networks to increase reliance if connection charges are currently set below incremental costs. However, it is not clear why the proposed reliance limit is necessary to achieve this objective, or how it would contribute to it.

The Authority's proposal appears to recognise that rapid changes in reliance on capital contributions may lead to similarly rapid price changes that could be undesirable from an allocative efficiency perspective (for example, customers may not have the opportunity to plan their best response to large changes in price signals in a short space of time). The proposal appropriately considers that distributors may have limited ability to reduce their reliance in the near term.[76]

5.2 Reconciliation of connection charges to the neutral point

The Authority proposes that distributors must provide, on request by a connection applicant or the Authority, a reconciliation between the connection charge and the net incremental costs of providing the connection service.[77]

[74] Consultation paper, para 7.101 (a).

[75] Consultation paper, para 7.101 (b).

[76] Consultation paper, paras 7.90 and 7.103.

[77] Proposed Code amendment, ss 6B.12 and 6B.13(1).

The reconciliation requires the distributor to break down its connection charge into the components on the right-hand side of the following equation:

$$CC = (IC - IR) + NC$$

In the equation above:

- CC is the connection charge;
- IC is the incremental cost estimate, calculated in line with the connection enhancement cost requirements and the capacity costing requirements;[78]
- IR is the incremental revenue estimate, calculated based on:[79]
  - estimated revenue from electricity lines services that the distributor will receive over the first 12 months of the connection;
  - extrapolated forward in constant dollar terms over a period of 30 years for a residential connection and 15 years for non-residential connection,[80] based on expected changes in demand, revenues or tariffs;
  - discounted to present value terms using the most recent mid-point estimate of real vanilla WACC determined by the Commerce Commission; and
  - multiplied by 0.9 to account for incremental operational expenditure costs; and
- *NC* is the contribution to shared network costs (ie, the difference between the connection charge and the net incremental cost, where the latter is defined to be equal to IC less IR).

The primary outcome of the reconciliation appears to be identification of the network contribution, being the extent to which any one customer is contributing to shared network costs through connection prices.

The reconciliation fast-track proposal is unlikely to have any significant efficiency implications given that its purpose is for monitoring. However, the Authority explains that the proposed reconciliation requirement provides a stepping stone towards the implementation of the full reform package, under which network contributions would be capped below the 'balance point'. The Authority argues that the calculations involved in the cost reconciliation (ie, the calculation of the incremental cost and incremental revenue associated with each new connection) are 'an essential step in setting charges with reference to the neutral or balance points'.[81]

We explain in section 4 that:

- the neutral point raises challenges for economic efficiency and competition; and
- the balance point is not a relevant concept for efficiency.

In the interim, the Authority argues that the reconciliation requirement will, among other things:[82]

- improve consistency and clarity for distributors, connection applicants and other interested parties;
- provide a reference point to inform capital contribution policies, connection negotiations and dispute resolution;
- improve transparency in the level of connection charges, providing applicants with greater certainty; and

[78] Proposed Code amendment, s 6B.13(2).

[79] Proposed Code amendment s 6B.13(3).

[80] Proposed Code amendment, s 1.1(1), definition of 'connection revenue life'.

[81] Consultation paper, para 7.78.

[82] Consultation paper, paras 7.78-7.79.

- potentially influence how distributors set connection charges, leading to fewer charges that are inefficiently low or high.

It is unclear how the Authority proposes that greater transparency, consistency and clarity will lead to changes in allocative, productive or dynamic efficiency. Consistency through time may enhance horizontal equity as between new and existing users.

Whether the reconciliation requirement will influence how distributors set connection charges is likely to depend on the conduct of individual distributors, and the extent to which they and their customers are aware of network contributions. Greater transparency around network contributions could influence some distributors to alter those contributions if the network contributions are found to be inconsistent with the distributor's connection policy or if customers make complaints regarding the network contribution level. However, some distributors and more sophisticated customers may already be aware of the nature of network contributions and the value of connection charges.

If the reconciliation requirement does influence how distributors set connection charges, it may lead to fewer charges that are inefficiently low. This is because it will make explicit to distributors where charges are below the net incremental cost. This may, in some cases, encourage distributors to raise connection charges to an efficient level.

It is less likely that the reconciliation requirement will lead to fewer inefficiently high charges, given that it does not assist distributors or connection applicants to discern if charges are above the opportunity cost of the connection service to a customer (ie, the upper bound for efficient pricing – section 2.1.1. Given that the reconciliation requirement is not set with reference to an efficient range of prices as described in section 2.1.1, this proposal is unlikely to be a vehicle for the achievement of efficiency gains.

The costs incurred by distributors in identifying the network contribution for every connecting customer is also a relevant consideration in an overall assessment of efficiency. Given the certain costs associated with calculating the network contribution estimate and providing it to each connecting customer, the proposed reconciliation requirement must provide a realistic prospect of efficiency improvements to be justified.

6. Lessons from the Australian context

In this section we describe elements of the framework for connection services in the national electricity market (NEM) in Australia from which the Authority appears to have drawn inspiration, but that differ in material respects to both the Authority's representation of them and how they are reflected in its proposal.

The Authority says that it has developed its proposal by examining arrangements in other jurisdictions, with a focus on Australia and the United Kingdom.[83] However, the rationale for this framework and the way it is applied is very different in Australia – differences that do not appear to be well understood or well explained by the Authority.

By way of example, there is:

- significant diversity in connection pricing in the NEM, including as facilitated by the Australian Energy Regulator (AER) – whereas the Authority says there is moderate consistency in Australia and that such inconsistency in New Zealand is a source of 'inefficiency';
- where connection services are provided in a contestable market, the incremental cost of the connection service is recovered upfront, in its entirety, from the access seeker – which is not mentioned by the Authority;[84] and
- the incremental cost revenue test in the national electricity market, from which the Authority draws much inspiration and puts at the centre of its proposed economic framework:
  - is applied only in certain circumstances, and that are not consistently defined across distributors;
  - is not applied when there is the prospect of competition in connection services; and
  - is accompanied by mechanisms that protect existing customers from the risks associated with deferment of the recovery of the incremental cost of connection.

Important context to the discussion that follows is that connection charges in Australia reflect the classification of the service in a regulatory determination, which in turn determines the form of regulatory control applied to the service and, therefore, how connection charges are calculated.

We describe this service classification process in appendix A.2.

6.1 Significant diversity in connection pricing

There is significant diversity in connection pricing across Australia, including as between:

- the NEM and Western Australia;
- the states, territories and jurisdictions that comprise the NEM;
- between individual distributors, including those located in the same state; and
- between different types of customers for a particular distributor; and
- for the same type of customer but with different circumstances applying to their connection application, eg, whether or not an asset is likely to be used by other customers within a certain timeframe.

These differences reflect different frameworks for the contestable provision of connection services and the degree of discretion available to distributors in the classification of connection services, which in turn determines whether and what form of regulatory control applies.

[83] Consultation paper, para 6.2(b).

[84] Consultation paper, para 6.6(a).

By way of the most granular form of example, the same connection service provided by Energex in Queensland is classified differently – as an alternative or standard control service, each with different implications for connection charges – depending on:[85]

- whether the customer is a small customer (standard control) or a large customer (alternative control); or
- whether there is a reasonable likelihood that the asset will be used by other customers (standard control) or won't be used by other customers (alternative control).

In contrast, the Authority says there is only moderate consistency in Australia and that such inconsistency in New Zealand is a source of 'inefficiency'.[86]

In our opinion, it is incorrect to conclude that there is moderate consistency in connection pricing in Australia. The longstanding diversity in connection charges overseen by the AER in Australia calls into question the Authority's assertions that inconsistency in connection charges in New Zealand is a source of inefficiency.

6.2 Full incremental cost charged for some connection services

Despite the attention given to the cost revenue test, neither the Authority nor CEPA explain that, for contestable connection services in Australia, the incremental cost of the connection service is recovered upfront, in its entirety, from the access seeker.

Connection services provided in competitive markets, such as in New South Wales are unregulated and typically left as 'unclassified' services by the AER. For example, in New South Wales, almost all connection services are contestable and provided by accredited service providers (ASP) that are engaged and paid by a connection applicant, ie, the customer pays the ASP directly, upfront and in full for the incremental cost of connection.

We explain in section 4.2.3 that the ability of a distributor to price a connection charge below the incremental cost of connection, such as by offsetting future years of distribution revenue, could not be matched by third party providers and would therefore present a material barrier to competition, without some offsetting adjustment mechanism.

Similarly, the full cost of a connection service that is classified as an alternative control services is recovered from an access seeker, typically upfront, eg, the incremental cost revenue test does not apply to connection services that are classified as 'alternative control'.

It follows that there are a range of instances in which the cost of connection is, or may be, recovered upfront in its entirety from the access seeker.

In contrast, the Authority incorrectly summarises the methodology applied in Australia as:[87]

> Connectors pay incremental cost net of incremental revenue.

The incremental cost revenue test in Australia is only applied to those connection services provided by a particular distributor that are classified as a standard control service, as summarised in the discussion that follows and described in more detail in appendix A.2.

[85] AER, *Draft Decision Energex Electricity Distribution Determination 2025 to 2030 (1 July 2025 to 30 June 2030) Attachment 13 Classification of services September 2024*, pp 13-14. See Standard connection services – premises connections and Standard connection services – network extension.

[86] Consultation paper, paras 5.4(a) and 6.2(b).

[87] Consultation paper, para 6.4, table 6.1.

6.3 Limitations of incremental cost revenue test

The Authority's assessment of the Australian landscape suggests that the cost revenue test is near-ubiquitous in Australia. However, it is only adopted in the NEM and only applied to those connection services offered by a particular distributor that are classified as standard control services, subject to certain exclusions.

The cost revenue test does not apply to connection services that are:

- 'unclassified', eg, almost all connection services in New South Wales;
- classified as 'alternative control', eg, typically where it is reasonable to expect that the asset won't be used by other customers; or
- for a network augmentation: [88]
  - required by a basic connection service that is classified as a 'standard control service'; or
  - where a relevant threshold set out in the distributor's connection policy is not exceeded, with this threshold being based on a measure of demand and fixed for the duration of the regulatory control period.

The latter two exclusions reflect that one of the overarching principles is to exclude deep system augmentation charges from connection charges for retail customers.[89]

Not applying the incremental cost revenue test to 'unclassified' connection services reflects the principle in the national electricity rules that the AER's guideline for connection policies should ensure that connection charges are competitively neutral, eg, for the reasons explained in section 4.2.3.[90]

The AER determined that its service classification process will result in connection charges that comply with the principles in the rules for connection services classified as alternative control, negotiated or unclassified.[91]

In contrast, it determined that a cost-revenue test should be applied to the components of connection services classified as standard control services because:[92]

> …standard control services, which are generally recovered through an average charge on electricity usage, do not always meet the principles of chapter 5A. In particular, they lack user pays signals with respect to the costs of the specific connection services required by connection applicants and may result in cross subsidisations of that connection applicant. The cost-revenue test is required to determine whether an additional upfront capital contribution is required in order to improve user pays signals and reduce the level of cross-subsidies between customers.

That is, the original purpose of the cost-revenue test was to introduce greater cost-reflectivity in connection charging, and to encourage capital contributions on some occasions so as to address inefficiently low connection charges.

[88] National Electricity rules, clause 5A.E.1.

[89] For the purposes of this principle a retail customer excludes a non-registered distributed energy resource (DER) provider, a real estate developer, a registered participant or an intending participant. See NER, cl 5A.E.1(b).

[90] National Electricity rules, clause 5A.E.3(b).

[91] AER, *Connection charge guidelines for electricity customers,* October 2024, p 8.

[92] AER, *Connection charge guidelines for electricity customers,* October 2024, p 7.

6.4 Mitigating risk for existing customers

In recognition that application of the incremental cost revenue test defers the recovery of the incremental cost of connection over a period of up to 30 years, the AER permits prepayments or financial guarantees to be sought from the access seeker.

For example, upon establishing its framework, the AER explained that:[93]

> Securities fees, whether by prepayment or financial guarantee, help to insure DNSPs against the risk of failing to collect the total estimated incremental revenue associated with a connection offer. In the absence of a security scheme, if the DNSP does not collect the total estimated incremental revenue, then the shortfall would eventually be recovered through higher network tariffs to all other network users.

In contrast, the Authority acknowledges neither the role of financial guarantees in Australia nor the significant risk for existing customers that is likely to arise from its proposed version of the incremental cost revenue test, as discussed in section 4.2.2.[94]

In particular, the Authority's proposed deduction of expected distribution revenue over a period of up to 30 years in the calculation of connection charges exposes existing customers to significant risks, particularly in the context of risky new investments associated with decarbonisation, support for which appears to be a key objective of the proposed regulatory intervention, as discussed in section 3.3.3.

[93] AER, *Connection charge guidelines for electricity retail customers*, Final decision, 20 June 2012, p 61.

[94] Consultation paper, para 7.59.

7. Alternative reform options

In this section we describe alternative reform options that could better address the concerns that underpin the Authority's proposed reforms.

7.1 Support electrification projects through distribution tariffs

In section 3.3 we observe that a key underlying driver of the Authority's reform appears to be supporting the commercial viability of large-scale electrification projects, which it suggests are not proceeding at the rate it deems efficient because connection charges are 'too high' and because such projects are 'sensitive to the total cost of electricity.[95]

The Authority's proposed reforms support the commercial viability of electrification projects by reducing the up-front component of their total network cost, ie, connection charges, rather than the ongoing distribution tariffs they face over the life of their connection.

However, its proposed reforms at the same time:

- transfer material risk from new electrification projects to existing customers, as discussed in section 4.2.2;
- provide support to all new connections, not just large-scale electrification projects, in the form of lower up-front costs; and
- create inequities between existing and new customers.

These shortcomings are not necessary features of the provision of support to electrification projects.

In our opinion, the provision of support to electrification projects through targeted, lower ongoing distribution tariffs is a materially preferable alternative. It would:

- support the commercial viability of electrification projects through lowering the total network cost of its operations – and if a project is commercial, there is no reason to expect that it would have problems raising capital to cover its upfront costs;
- ensure that the risk of new electrification projects lies with the party that is best placed to assess and manage that risk, ie, the connecting party;
- constrain the provision of support (from other customers) to those connecting customers that need it in the eyes of the Authority and/or distributor; and
- avoid inequities between the remainder of customers.

Importantly, a reform of this nature would facilitate transparent engagement with the community on the need for and extent of support that customers are willing to provide to electrification projects.

Finally, we note also that the discussion of this alternative is predicated on an assumption that a proper assessment of the current arrangements establishes that the provision of support for electrification projects is economically beneficial and promotes the Authority's statutory objective.

[95] Consultation paper, para 5.4(c)

7.2 Promote competition

If the Authority's objective is to promote competition in the provision of connection services, in line with its statutory objective, it would be best served by options that place distributors and third party providers on an equal footing when bidding for connection projects.

This could be most simply achieved by requiring distributors to recover the cost of contestable connection services (which might exclude certain services, eg, shared network augmentations) upfront in their entirety, consistent with the framework for contestable connection services in New South Wales.

Of particular relevance to the Authority's problem definition, promoting competition in the provision of connection services would address its concern that distributors face a lack of incentives to constrain connection costs to efficient costs only.[96] Specifically, competition would promote price and risk allocations between customers and connection providers that are in line with the outcomes of a workably competitive market.

7.3 Improve economic efficiency

One theme of the Authority's problem definition is the potential for the regulatory framework for distribution services to not provide appropriate incentives for distributors to facilitate efficient connections.

If this concern were to be substantiated, regulatory best practice would be to amend those elements of the regulatory framework from which the distortion or lack of incentives arise.

For instance, to the extent the Authority's proposed reforms are targeted at counteracting an outworking of an incentive mechanism administered by the Commerce Commission, it would be better simply to amend that mechanism, acknowledging that this onus would fall to the Commission, rather than the Authority. For example, this could likely be achieved through modest amendments that ensure net capital expenditure is unaffected by increases in connection charges.[97]

In contrast, the Authority's proposal seeks to counteract a proposed outworking of the regulatory framework administered by the Commerce Commission by amending an entirely different element of the regulatory framework, which introduces its own range of shortcomings, as discussed in section 4.

Another problem raised by the Authority is the lack of incentive for distributors to offer innovative connection services, such as flexible connections, which would promote dynamic efficiency. To the extent that there are economic benefits that connection applicants may draw from innovative connection offers, these benefits are more likely to be captured by harnessing the power of economic incentives than by mandating certain offers. Again, the consideration and design of such incentives is likely to fall within the power of the Commerce Commission, since the provision of such incentives would require changes to distributors' building block revenues.

[96] Consultation paper, para 5.4(c)(iii).

[97] Consultation paper, para 5.4(c)(i).

A1. Economic assessment of fast-track proposals

This appendix provides an overview and economic assessment of the Authority's fast-track proposals (to the extent that we have not covered them in section 5). We assess the fast-track proposals through the lens of the key economic principles set out in section 2, ie:

- allocative efficiency;
- productive efficiency; and
- dynamic efficiency.

We explain in section 3.1 that promoting these economic principles is part of the Authority's statutory objective along with promoting competition.[98]

The Authority's fast-track proposal, as set out in its proposed Code amendment, comprises:[99]

- **a capital contributions reliance limit for load**: the placing of an upper bound on each distributor's total annual connection charges, expressed as a percentage of annual capital expenditure on connections and system growth, that is equal to the higher of:[100]
  - the sector-wide average in recent years, ie, 47 per cent. and
  - the percentage that applied to the relevant distributor in 2024;
- **connection charge reconciliation requirements**: distributors are required to prepare a breakdown of future connection charges into incremental costs and shared network costs, to be provided to a customer upon request and used by the Authority for monitoring purposes;[101]
- **connection enhancement cost requirements**: introduction of the minimum scheme concept – being the least cost solution to provide an acceptable service level to the customer – as the default benchmark for connection charges, with distributors having the option to use published connection rates as an alternative;[102]
- **unit rates for capacity upgrades**: the requirement that any shared network capacity upgrade costs included in connection charges must be based on published per unit rates;[103]
- **pioneer schemes**: the implementation of a pioneer scheme for network extensions;[104] and
- **dispute resolution**: recourse to dispute resolution under part 6 of the Code in circumstances where a distributor and a connection applicant cannot find agreement in relation to connection issues.[105]

The capital contributions reliance limit for load and the connection charge reconciliation requirements are described in more detail at section 5 of this report. The remaining aspects of the Authority's fast-track proposals are described below, along with their implications for efficiency.

[98] We do not consider that any of the fast-track reforms are likely to have a material effect on competition.

[99] Proposed Code amendment, s 6B.3(2).

[100] Proposed Code amendment, s 6B.7.

[101] Proposed Code amendment, s 6B.12.

[102] Proposed Code amendment, s 6B.4.

[103] Proposed Code amendment, s 6B.6.

[104] Proposed Code amendment, s 6B.8.

[105] Proposed Code amendment, ss 6B.14 and 6B.15.

A1.1 Connection enhancement cost requirements

Authority's proposal

The Authority's proposed Code amendment defines the concept of a 'minimum scheme', as:[106]

> …the least-cost solution for any connection works provided by a distributor, including for security and firmness of capacity, in accordance with good electricity industry practice or a lower standard if agreed to in writing between the connection applicant and the distributor.

The Authority's proposed Code amendment employs this minimum scheme as a baseline on which a distributor must determine connection charges. The costs of improvements made to the minimum scheme:[107]

- must be allocated to the connection applicant only where these improvements are requested and agreed by the connection applicant; and
- otherwise, must not be allocated to the connection applicant.

The distributor may use posted connection charges, instead of calculating costs under the minimum scheme, where the connection is of the type and meets the requirements specified by the distributor for the posted connection charge.[108]

If a distributor publishes per unit costs for network extensions, then it must use those rates to determine the costs under a relevant minimum scheme or for any customer selected enhancements for relevant network extension works.[109]

The Authority also introduces the concept of a minimum flexible scheme, which is an alternative solution that relies on load control to deliver reduced security or firmness of supply (ie, a flexible connection) at a lower cost than the minimum scheme. Connections must be priced according to a minimum flexible scheme if this requested by the customer and if it is feasible for the distributor to do so.[110]

Implications for efficiency

In principle, pricing connections based on the least cost technically feasible design (ie, the minimum scheme) would lead to an allocatively efficient outcome. This must be weighed up against the cost of working out the appropriate minimum scheme charge for each individual connection.

Posted rates may reduce the resource cost and time associated with processing connection applications because the need to re-cost the minimum scheme for every connection is avoided. However, posted rates may mean that not every individual connection is priced at least cost.

Enabling distributors to apply published rates when the distributor considers it would be cost minimising to do so, and requiring the minimum scheme in other instances (as per the Authority's proposal) appears to provide an appropriate balance between these competing considerations (ie, the respective advantages and disadvantages of the minimum scheme and posted rates).

Published connection and extension rates also provide incentives for productive and dynamic efficiencies, whereby distributors will look to provide the same level of service at a lower cost wherever possible.

The requirement to develop a minimum flexible scheme where feasible and requested by a connection application may also encourage innovation and thereby promote dynamic efficiency. However, the resource

[106] Proposed Code amendment, s 1.1(1), definition of 'minimum scheme'.

[107] Proposed Code amendment, s 6B.4(1).

[108] Proposed Code amendment, s 6B.4(4).

[109] Proposed Code amendment, s 6B.5.

[110] Proposed Code amendment, s1.1(1), definition of 'minimum flexi scheme'; and Consultation paper, para 7.6 (b).

costs of designing and costing a minimum flexible scheme must be considered. Where a distributor can identify clear cost savings, then a minimum flexible scheme has the potential to deliver efficiency benefits that outweigh the costs of its design.

A1.2 Capacity costing requirements

Authority's proposal

The Authority proposes that, if a distributor intends to charge a connection applicant for the cost of expanding capacity on its shared network, then these charges must reflect posted per unit capacity rates across five tiers of its network, being:[111]

- sub-transmission lines;
- zone substations;
- high voltage feeders;
- distribution substation; and
- low voltage mains.

Posted capacity rates for a given network tier may vary across a distributor's service area, with each distinct region known as a 'network costing zone'.[112]

The posted capacity rate must be the average cost per capacity for an upgrade for a given network tier and network costing zone, and may be set to zero if there is no foreseeable need for such an upgrade.[113]

However, the distributor can set charges based on its estimated costs, rather than posted capacity rates, if:

- the capacity sought by the connection applicant exceeds 80 per cent of the upgrade used to determine the posted capacity rate;[114] or
- the estimated cost per unit exceeds 150 per cent of the posted capacity rate.[115]

Implications for efficiency

The proposed capacity costing reforms mean that all new connections must pay the average per unit cost of a network upgrade for the units of capacity that their connection needs. This means that network capacity charges for a new connection are independent of whether that connection triggers the need for any upgrade to the capacity of the shared network.[116]

The purpose of this reform is to remove any 'position-in-queue' dynamics, whereby otherwise similar connection applicants face different charges due to their position in the queue of connecting applicants. This is also referred to as a 'first-mover disadvantage'. In this case, the connection that triggers the need for a network upgrade faces a higher cost than earlier or later connections and thereby be deterred from connecting. This can lead to connection applicants attempting to manipulate when or whether they connect to avoid larger connection charges. These dynamics could occur under a project-based approach, whereby connection applicants are charged the costs triggered by their connection.

[111] Proposed Code amendment, s 6B.6(1)(a) and s 1.1(1), definitions of 'network tier' and 'network capacity cost'.
[112] Proposed Code amendment, s 1.1(1), definition of 'network costing zone'.
[113] Proposed Code amendment, s 1.1(1), definition of 'posted capacity rate'.
[114] Proposed Code amendment, s 6B.6(2) and s 1.1(1), definition of 'nominal capacity increment'.
[115] Proposed Code amendment, s 6B.6(3).
[116] Consultation paper, para 7.20.

The Authority's proposed reform is likely to increase horizontal equity as between connection applicants with similar characteristics, by enforcing uniform charges.

There are competing considerations relating to allocative efficiency in this context.

The proposal may reduce allocative efficiency because it is efficient to signal the cost of connecting any given customer to the network – this is known as cost reflective pricing. This is efficient because the party making the economic decision that triggers the costs is forced to factor those costs into its decision (ie, to respond to price signals). Cost reflective pricing may enable a customer to make an efficient decision not to connect or to connect elsewhere if it avoids the need for expensive network upgrades. Further, some marginal customers who do not trigger the need for a network upgrade may be deterred from connecting if they are charged a per unit network capacity rate for costs that their connection does not trigger.

On the other hand, if a group of customers would all be willing to connect where they share the cost of a network capacity upgrade, but no individual customer would be willing to pay for a substantial share of the upgrade, then this proposal could promote allocative efficiency by enabling that group of customers to connect at a price that is, in aggregate, between the efficient pricing bounds.

Therefore, the overall impact of this proposed reform on efficiency is unclear. In this context, distributors may be best placed to determine the most efficient approach for different parts of their network, based on the types of customers expected to connect. The proposed threshold tests for setting capacity charges based on estimated costs provide an element of flexibility in some circumstances.

Pioneer schemes (discussed in more detail in appendix A1.5 below) present an alternative approach to the position-in-queue and first mover disadvantage issue. Pioneer schemes create different allocations of risk relative to posted per unit rates. This is observed by CEPA who explain that:[117]

> Under the pioneer scheme proposal, the first connecting customer is charged the full cost of the upgrade, but receives a rebate from any subsequent connecting customers which share the same assets. This reduces the first-mover disadvantage but still exposes the first connecting customer to some risk (the risk that subsequent connecting parties will not show up). An alternative approach is to charge each connecting customer just the average incremental cost of connection (reflected in 'unitised rates'). Under this approach the risk that subsequent connecting parties will not show up is socialised to all customers.

It is important to note that under a pioneer scheme, risks associated with the first mover disadvantage are borne by the party making the decision (the prospective 'first mover') whereas under the posted unit rate approach, those risks are transferred to the customer base of the distributor. Therefore, trade-offs exist with respect to efficiency when considering these alternative policy options.

A pioneer scheme may create a price signal that is closer to the true cost of connection, because the party making the economic decision bears the risk that no other customers will subsequently use these assets,. However, the first mover disadvantage and any associated inefficiencies may persist under this approach, albeit to a lesser extent than without a pioneer scheme. We note that in principle the pioneer scheme approach to extension costs described below could also be applied to capacity costs.

A1.3 Pioneer scheme

Authority's proposal

A pioneer scheme is a framework by which customers who make capital contributions towards connection assets may receive rebates for some part of these costs where subsequent connections also utilise these assets.

[117] CEPA report, p 19.

The Authority proposes that every distributor must establish a pioneer scheme policy by 1 April 2026.[118]

A pioneer scheme must apply to connection works amounting to more than $30,000 (in December 2025 dollar terms), the cost of which is met by a connection applicant who does not opt out of applying a pioneer scheme.[119] A scheme may have more than one pioneer, with subsequent pioneers being those who contribute more than $10,000 (in December 2025 dollar terms) to the scheme.[120]

Each distributor must set out pricing methodologies for every pioneer scheme that specify how it will:[121]

- administer and collect contributions to the scheme; and
- determine eligibility for, and the amount of, rebates to pioneers under the scheme.

Contributions to the pioneer scheme must be determined on the basis of actual costs, or estimated costs if these are not known. Subsequently, the distributor must depreciate these contributions on a straight-line basis over a period of 20 years.[122]

From the time that any other party connects to the scheme, the distributor must apply a rebate to apply to connection charges to the original pioneer under the scheme.[123] Rebates due to a pioneer under a pioneer scheme must be calculated so as to be proportionate to the extent that each pioneer has met the costs of connection works covered by the scheme.[124]

Implications for efficiency

A number of the allocative efficiency implications for pioneer schemes are covered by the discussion on implications for efficiency in appendix A1.4 above.

A pioneer scheme has the potential to reduce the 'free-rider' problem that may otherwise deter efficient connections. Under a pioneer scheme, the first connecting party (or 'pioneer') pays for the incremental cost of the connection assets but is aware that future new connections (if they subsequently use these assets) would be required to contribute to the cost of the assets. This removes a source of competitive disadvantage that the pioneer may have relative to future connections, and so may avoid some situations where that potential pioneer is deterred from connecting to the network.

The Authority's proposal may in effect require distributors to develop new pioneer schemes for each new dedicated connection asset on its network. The costs of developing these pioneer schemes, particularly for smaller distributors, should be considered alongside the potential efficiency gains. In some cases, a single template pioneer scheme developed by the policymaker could reduce administrative costs without significantly compromising the potential efficiency gains from pioneer schemes.

A1.4 Dispute resolution

Authority's proposal

The Authority proposes to extend existing dispute resolution procedures applicable to connecting generators to also apply to connections applicants who are load customers.[125]

[118] Proposed Code amendment, s 6B.8(1).
[119] Proposed Code amendment, s 1.1(1), definitions of 'pioneer scheme' and 'pioneering connection works'.
[120] Proposed Code amendment, s 1.1(1), definition of 'pioneer'.
[121] Proposed Code amendment, s 6B.9(3).
[122] Proposed Code amendment, s 6B.10(4)(a)-(b).
[123] Proposed Code amendment, s 6B.10(2)(b).
[124] Proposed Code amendment, s 6B.10(5).
[125] Consultation paper, para 7.119.

There is a distinction between connection applicants that qualify as market participants and those that do not. In the case of market participants, the dispute resolution procedures in the existing Schedule 6.3 of the Code applying to generation connections will apply, including:[126]

- a requirement to seek to resolve issues in good faith; and
- the option for the Authority to make a determination on connection charges applying pricing methodologies.

In the case of connection applicants who are not participants, the dispute resolution process set out in the Electricity Industry (Enforcement) Regulations 2010 will apply, along with a requirement on distributors to Act on good faith.[127] The Authority considers that this process is 'generally similar' to that which applies to participants, though there is not the option for the Authority to make a determination on connection charges in respect of non-participants.[128]

Implications for efficiency

A dispute resolution mechanism is likely to be necessary in order to give effect to the other fast-track proposals that the Authority has put forward.

We concur with CEPA's view that 'the dispute resolution mechanism should be able to tailor its efforts to the value of the issues in dispute'.[129] For example, mechanisms for smaller customers should be targeted to achieving timely outcomes, whereas for larger customers more extensive allocation of resources to dispute resolution may be desirable.

[126] Proposed Code amendment, s 6B.14; and Consultation paper, para 7.119.

[127] Proposed Code amendment, s 6B.15.

[128] Consultation paper, para 7.122.

[129] CEPA report, p 24.

A2. Connection pricing in the Australian National Electricity Market

A2.1 Classification of services

The classification of services is an important aspect of the regulatory framework that applies to distributors in the NEM since it determines the scope of regulation, the form of any control mechanism and the customers from which the cost of a particular service will be recovered.

In general terms, the network services provided by distributors can be classified into two broad categories:

- regulated services, being those services that distributors provide into markets not characterised by effective competition, and that therefore require some form of regulation to restrain the exercise of market power; and
- non-regulated services, being those services provided by distributors on a contestable basis, ie, into markets characterised by effective competition, and that therefore do not require regulation.

Regulated distribution services can be classified into two broad categories. These are:[130]

- direct control services, being those distribution services for which the Australian Energy Regulator (AER) determines a prescriptive approach to regulation is required – this may involve the AER directly setting the prices that distributors charge to customers or setting the revenues that distributors may recover from customers; and
- negotiated services, being those distribution services provided by distributors where the AER determines a less prescriptive approach can be taken, since all parties have sufficient market power to negotiate the provision of those services – these negotiations are undertaken in accordance with a framework established by the National Electricity Rules (NER), where the AER is available to arbitrate as required.

In determining whether to classify a service as either a direct control service or a negotiated service, the AER must have regard to the form of regulation factors, the form of regulation that previously applied to the relevant service, the desirability of consistency in the form of regulation of similar services and any other relevant factor.[131]

The form of regulation factors outline the circumstances where the market for a particular service may not operate efficiently. The AER generally should not classify a service as regulated where it is provided in a workably competitive market.

Direct control services are further classified by the AER into two subclasses, namely:[132]

- standard control services, which are direct control services provided by distributors for the benefit of all distribution network customers – the cost incurred in providing standard control services may be recovered from all customers; and
- alternative control services, which are direct control services provided by distributors that are either dedicated to, or requested by, a small number of distribution network users – the costs incurred in providing alternative control services may be directly recovered from those users.

The AER applies this framework to connection services by reference to three principal types of connection services, ie:[133]

[130] NER, cl 6.2.1.

[131] NER, cl 6.2.1(c).

[132] NER, cl 6.2.2(a).

[133] AER, *Electricity distribution service classification guideline,* August 2022, p 15.

- basic connections, being a simple connection of a customer to the network which involves no or minimal extension or augmentation;
- standard connections, being a connection to the network that is not a basic connection and may involve extension and/or augmentation; and
- negotiated connections, being connections that meet specific requirements of a customer and the distributor and may involve network extension or augmentation.

The different components of connections, ie, premises assets, extensions and augmentation are considered as cost components of these connection services.[134] However, the AER acknowledges that, under certain circumstances, these components may receive a different classification, or not be classified at all.[135] This reflects the various factors that the AER has regard to in assessing whether connection costs are attributable to a specific customer or all network customers. These include:[136]

- the extent to which a connection is contestable and may therefore be performed by an entity other than the distributor (noting that contestability is a jurisdictional prerogative);
- the specific nature (size and location) of a connection for a particular customer or group of customers; and
- operational and other jurisdiction specific requirements.

A2.2 Cost-revenue test only applies to standard control services

Chapter 5A of the NER and accompanying guidelines developed and published by the AER set out the principles that govern connection pricing in the NEM. One of the overarching principles is to exclude deep system augmentation charges for retail customers in their connection charges.[137] This principle is implemented through the requirement that a retail customer who applies for a connection service for which an augmentation is required cannot be required to make a capital contribution towards the cost of the augmentation (insofar as it involves more than an extension) if:[138]

- the application is for a basic connection service; or
- a relevant threshold set out in the distributor's connection policy is not exceeded, with this threshold being based on a measure of demand and fixed for the duration of the regulatory control period.[139]

Outside of this overarching prohibition, distributors in the NEM are able to incorporate a reasonable capital contribution towards the cost of the augmentation necessary to provide the connection service as part of its pricing.[140] The precise nature of these pricing arrangements is governed by the AER's guidelines, which were developed to ensure connection charges: [141]

- are reasonable, taking into account the efficient costs of providing the connection services arising from the new connection or connection alterations and the revenue a prudent operator in the circumstances of the relevant distributor would require to provide those connection services;
- provide, without undue administrative cost, a user-pays signal to reflect the efficient cost of providing connection services;

[134] AER, *Electricity distribution service classification guideline,* August 2022, p 15.

[135] AER, *Electricity distribution service classification guideline,* August 2022, p 15.

[136] AER, *Electricity distribution service classification guideline,* August 2022, p 14.

[137] For the purposes of this principle a retail customer excludes a non-registered distributed energy resource (DER) provider, a real estate developer, a registered participant or an intending participant. See NER, cl 5A.E.1(b).

[138] NER, cl 5A.E.1(b)(1)-(2).

[139] AER, *Connection charge guidelines for electricity customers,* October 2024, p 4.

[140] NER, cl 5A.E.1(c).

[141] NER, cl 5A.E.3(b).

- limit cross-subsidisation of connection costs between different classes (or subclasses) of retail customer; and
- if the connection services are contestable – are competitively neutral.

In applying these principles to develop the guidelines, the AER drew heavily on the service classification framework set out in the NER. In particular, the AER examined whether the service classification process and the associated form of regulation would lead to pricing outcomes consistent with the above principles.

By way of example, the AER determined that a cost-revenue test should only be applied to the components of connection services classified as standard control services. The AER explained that:[142]

> …The AER considers that standard control services, which are generally recovered through an average charge on electricity usage, do not always meet the principles of chapter 5A. In particular, they lack user pays signals with respect to the costs of the specific connection services required by connection applicants and may result in cross subsidisations of that connection applicant. The cost-revenue test is required to determine whether an additional upfront capital contribution is required in order to improve user pays signals and reduce the level of cross-subsidies between customers.

In contrast, the AER found in relation to connection services classified as alternative control, negotiated or unclassified, that:[143]

> …the service classification process will result in connection charges meeting the principles of Chapter 5A. Unlike standard control services, the AER does not consider a cost-revenue-test need be applied to these services.

[142] AER, *Connection charge guidelines for electricity customers,* October 2024, p 7.

[143] AER, *Connection charge guidelines for electricity customers,* October 2024, p 8.

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