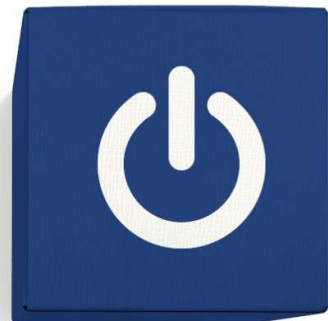


Reducing barriers for new connections: CEPA Response to submissions on Consultation Paper

New Zealand Electricity Authority

29 June 2026



FINAL REPORT

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1. INTRODUCTION

1. On 17 November 2025, the Authority released a Consultation Paper entitled “Reducing barriers for new connections: up-front charges and distributor obligations”.¹ This paper focused on two main topics: connection charges and distributor supply obligations. A CEPA report commissioned by the Authority accompanied the Consultation Paper.² In response, some stakeholders commissioned reports from economic consultants.³
2. This note responds to the two reports commissioned by Vector, from HoustonKemp in Australia and Oxera in the UK.⁴ We have been asked by the Authority to focus on matters relating to connection charging, and not on the distributor supply obligations. Within the topic of connection charging, we have been asked to focus on a limited number of issues, as agreed between CEPA and the Authority. We have not sought to address every point raised by stakeholders. Where we do not address a point, we have not considered the issue raised by HoustonKemp, Oxera or Vector.
3. This paper assumes the reader has familiarity with the topic, and so does not seek to restate key concepts that are discussed in our three previous reports⁵. Readers unfamiliar with the topic are encouraged to read the Authority’s papers, CEPA’s previous supporting reports, and previous submissions to the Authority, available on its website.

¹ [Electricity Authority](#), “Reducing barriers for new connections: up-front charges and distributor obligations: Consultation paper”, 17 November 2025,

² [CEPA](#), “Connection obligations and interim restraints on connection charges”, 13 November 2025.

³ See the submissions from [Vector](#) and [Powerco](#) (dated 4 February 2026).

⁴ Both are attached to the submission from Vector.

⁵ “Regulation of distribution connection charges in New Zealand”, 14 October 2024, available [here](#); “Distribution Connection Pricing – Assessment of submissions”, 2 July 2025, available [here](#); and “Connection obligations and interim restraints on connection charges”, 13 November 2025, available [here](#).

2. RESPONSE TO SUBMISSIONS

2.1. ON THE ECONOMIC FRAMEWORK

4. Vector and its advisers suggest that the Authority has not articulated a clear economic framework that is consistent with its statutory objectives of efficiency and competition. For example, HoustonKemp suggest that there is a:

“lack of a clear economic framework applied by the Authority” (page ii).

5. Similarly, Vector observes that:

“Our expert economists have struggled to understand what economic framework the Authority has used to determine that prices are too high or inefficient.” (para 6).

6. Vector also argues that:

“The Authority’s proposals in the Consultation Paper are not well aligned with its statutory objective because they do not promote economic efficiency or competition” (para 83).

7. This is echoed by HoustonKemp who write:

“The Authority has not clearly articulated how it would propose to assess the costs and benefits of proposed options, which is consistent with the absence of an economic framework connecting its proposal with the promotion of its statutory objectives of efficiency and competition.” (page iii)

Outlining the economic framework

8. In contrast, in our view – and consistent with our previous work – we consider that the Authority’s approach is based in a sound, conventional economic framework consistent with the Authority’s statutory objectives⁶. Specifically, we understand that the Authority’s analysis is based on an economic framework consisting of three fundamental principles from regulatory theory:
9. The first principle is that the Authority should seek to promote economic efficiency. We consider that this is consistent with (and, indeed, required by) the Authority’s main statutory objective, which is to promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers. It is also consistent with the Authority’s additional objective to protect the interests of domestic consumers and small business consumers, in respect of the dealings of industry participants with these customers.
10. As HoustonKemp notes⁷, economic efficiency is sometimes said to have three dimensions – allocative, productive and dynamic efficiency. The approach set out by the Authority seeks to promote each of these dimensions of economic efficiency, with a particular focus on dynamic efficiency.
11. The second key principle from regulatory theory which underpins the analysis of the Authority is the concept that the revenue from a service or group of services should exceed the incremental cost of that service or group of services (and should not exceed the standalone cost of that service). This principle prevents “cross-

⁶ Section 15 of the Electricity Industry Act 2010 sets out the objectives of the Electricity Authority.

⁷ HoustonKemp, page 2.

subsidies” between customers and services and is one component of promoting dynamic efficiency.⁸ We will refer to this as the “incremental-cost-revenue-floor” principle.⁹

12. One key rationale for the “incremental-cost-revenue-floor” principle is that it promotes dynamic efficiency. This principle allows the regulated firm to commit to a policy of stable cost-based prices to its customers. Specifically, such a rule allows the regulated firm to promise that the prices to *one set of customers* will not go up due to an expansion of services to *other customers*. This is necessary to encourage new customers to make investments in reliance on the regulated service in the expectation that the prices they face will be stable and based only on the costs of providing the services they receive. This principle is therefore one component of promoting dynamic efficiency.
13. There is a third principle from regulatory theory which underpins the analysis of the Authority: the principle that the regulated firm should not have unfettered ability to change prices after its customers have made their investments. As we observed in our previous reports, this is a common feature of regulatory regimes in practice.
14. As HoustonKemp observes¹⁰, certain forms of price discrimination can enhance economic efficiency. Prices that are carefully structured, set out in advance and maintained over time – so that customers know what prices they will receive before making their sunk investments – can if carefully calibrated, allow the service to be extended to customers with a low willingness-to-pay, while recovering more revenue from customers with a high willingness-to-pay.
15. However, it is common to place some constraints on the ability of a regulated firm to change its prices ex post – that is, after the customers have made any relevant sunk investments. Allowing ex post price changes in principle allows the regulated firm to expropriate up to the full value of the sunk investments of the customers, undermining their incentive to make those investments in the first place.
16. For example, a developer of mobile apps might require access to a mobile app store to market its apps. If the owner of the app store can observe which apps are successful and then subsequently raise the charges for those apps ex post, it would undermine the incentive to invest to develop successful apps in the first place. The economic harm is the chilling effect on investment by customers.
17. In the same way, if an electricity distribution business could set prices on a case-by-case basis it could, in principle, observe the business case of every connecting business customer, and charge that customer the full economic value of the connection to that customer. This would undermine the incentive of the connecting customer to develop new business cases and new services which rely on access to the distribution network.
18. In short, while careful ex ante price discrimination can enhance economic efficiency, in practice most regulatory regimes place some limits on the ability of the regulated firm to engage in “ex post” or “case-by-case” price discrimination.¹¹ This is another component of promoting dynamic efficiency.

⁸ See HoustonKemp, page 13.

⁹ We use this terminology here as a shorthand. As we observe later, some form of the incremental-cost-revenue-floor principle is common across many regulated sectors. We noted in our previous report that this implies that the “incremental revenue from each connecting customer [must] exceed the net incremental cost of connecting that customer” (July 2025, para 29).

¹⁰ See HoustonKemp, page 11,12.

¹¹ For example the US Federal Power Act, section 205: “No public utility shall, with respect to any transmission or sale subject to the jurisdiction of the Commission, (1) make or grant any undue preference or advantage to any person or subject any person to any undue prejudice or disadvantage, or (2) maintain any unreasonable difference in rates, charges, service, facilities, or in any

Equity or efficiency?

19. Vector and HoustonKemp have further suggested that the Authority’s objective in this context is to promote *equity*, rather than its statutory objectives of efficiency and competition:

“the Authority’s approach and proposed intervention options reveal consideration of equity as its fundamental objective in this context, rather than its statutory objectives of efficiency and competition.”¹²

20. We acknowledge that constraints on price discrimination can sometimes be viewed through a lens of equity and inter-generational fairness. For example, many people would consider it “unfair” for an app store to raise its charges significantly on a successful app. In the same way, it might be considered unfair for an electricity distribution business to subsequently raise its charges on a customer who happens to operate a successful business.

21. However, as we have discussed above, we consider that these practices can also be viewed as undesirable through a traditional economic efficiency lens. As we have noted above, the ability to price discriminate in this way undermines the incentive of the customers to make investments in reliance on the regulated service. We suggest that the control of such “inter-temporal price discrimination” is *essential* if connecting customers are not to be deterred in making investments to develop businesses which rely on access to distribution networks. As we emphasised in our July 2025 paper, and as quoted by the Authority in the [November 2025] Consultation Paper:

“We agree that it is possible to view the Balance Point through a lens of equity. However, we have emphasised the role that the Balance Point plays in providing an assurance to connecting customers that they will not experience price discrimination, which could potentially undermine any investments they have made, deterring their attempt to seek connection in the first place. This is an efficiency argument.”¹³

22. In short, as indicated previously, we consider that the Authority’s proposals are based in a sound, conventional economic framework, and reflect the outworkings of a small number of economic principles with the fundamental purpose of promoting economic efficiency, consistent with the statutory objectives.

2.2. CONNECTION SERVICES AND NETWORK SERVICES

23. Having discussed the regulatory framework used by the Authority in the previous section, in this section we emphasise that its principles must be applied in a context in which connection services and network services are strong complements and always purchased as part of a bundle.

24. HoustonKemp, rightly, observes that the Authority’s approach assumes that connection services and network services are always purchased together as part of a bundle:

“A key assumption that underpins the Authority’s approach – supported by CEPA – is that the connection service and the network service are not economically distinct and should be deemed a single service for the purpose of considering efficient connection charges.” (page 8).

other respect, either as between localities or as between classes of service”. Similarly, the US Communications Act, section 202: “It shall be unlawful for any common carrier to make any unjust or unreasonable discrimination in charges, practices, classifications, regulations, facilities, or services for or in connection with like communication service, directly or indirectly, by any means or device, or to make or give any undue or unreasonable preference or advantage to any particular person, class of persons, or locality, or to subject any particular person, class of persons, or locality to any undue or unreasonable prejudice or disadvantage”.

¹² Vector, para 9.

¹³ CEPA, July 2025, para 162.

25. In contrast, HoustonKemp asserts that "connection and network services are economically distinct" and so should be priced separately, with the price for connection services equal to the incremental cost of connection. HoustonKemp suggest that failure to price in this way will lead to economic inefficiency:
- "By considering connection and distribution services together, the Authority proposes connection charges that fall below the incremental cost of the connection service, i.e., at net incremental cost or the neutral point. Connection pricing below incremental cost, e.g., at net incremental cost, encourages inefficient over-connection." (page 10).
26. As set out in our past reports, our view is that customers do not value or derive utility from a connection to a distribution network in its own right, but only as part of a bundle which includes the provision of network services:
- "If connecting customers had an incentive to obtain connection assets in their own right (i.e., could use connection assets directly without requiring on-going services) HoustonKemp's point would be a legitimate concern. But end-customers do not receive value or utility from connection assets directly. Rather, connection assets are acquired as part of a bundle that is required in order to receive distribution services. End-customers pay for connection assets and then also pay for on-going distribution services. It is only the price of the bundle that matters for economic connection decisions, not the price of the individual components."¹⁴
27. Economists refer to services which have no value except when they are consumed as part of a bundle of services consumed at the same time as **strong complements**.
28. There are many other examples of such pairs of strong complements in economics. One familiar example is cars, on the one hand, and the range of services (such as petrol, maintenance, tyres, etc.) which are necessary for the car to continue to provide transportation services on the other. Other examples include inkjet printers and inkjet cartridges, or video game consoles and video games which run on that console. In each case each service has no value except when consumed at the same time as the other service. An inkjet printer has no value unless it is used to print. Similarly, an inkjet cartridge has no value without a compatible printer.¹⁵ A video game console has no value until it is used to play video games, and vice versa.
29. When services are strong complements, *it is only the price of the bundle that is relevant* for the initial consumption decision of the customer. When considering whether or not to purchase a car a (rational) consumer weighs up both the purchase price and the ongoing operating and maintenance costs. When choosing between, say, videogame consoles the consumer weighs up both the upfront cost of the console and the price of the individual games. In the same way, when considering whether or not to connect the electricity network (relative to alternatives such as self-supply, say) the customer weighs up the upfront cost and the ongoing charges for the use of electricity.
30. It is common for certain upfront services (such as inkjet printers or video game consoles) to be priced below the full cost¹⁶ while the ongoing charges (in this case, inkjet cartridges or video game software) are priced above cost. Consumers recognise this pricing pattern and take into account *both* prices when making their consumption decisions.¹⁷

¹⁴ CEPA, July 2025, para 105.

¹⁵ Another (slightly silly) example is left shoes and right shoes.

¹⁶ But still, above the marginal cost.

¹⁷ Similar situations are common in economic life, such as the price of a car and the price of the maintenance services and fuel needed to operate the car.

31. Pricing the upfront service below the direct or immediate cost is not necessarily inefficient – indeed it may be required for efficiency. Specifically, such a pricing structure may be part of a strategy of ex ante price discrimination which enables the manufacturer of the bundle to sell more units to low users or light users, while earning additional revenue from high or intensive users. The fact that these pricing structures are found in competitive markets is strongly suggestive that they promote rather than undermine economic efficiency. In fact, an attempt to ban such pricing schemes could reduce the total revenue that manufacturers are able to earn, potentially undermining the incentive to develop such bundles (e.g., video game consoles and games) in the first place.
32. As we have argued in our previous reports, we consider that in the context of electricity distribution networks, connection services and network services are strong complements. In the eyes of the customer neither service has value without the other. It is only the price of the total bundle that is relevant for the consumer’s decision whether to take up a connection to the network.
33. This conclusion has an important implication when applied in the context of distribution charging: when applying the incremental-cost-revenue-floor principle, we must take into account *both* the upfront and ongoing revenue on the one hand, *and* the upfront connection cost and the ongoing network cost on the other. Even if there is no upfront charge, the additional revenue from the ongoing charges can still exceed the incremental cost of serving that customer.
34. This is formally expressed in the “Net Incremental Cost” test, which asserts that the connection charge should be no lower than the incremental cost of connection less the difference between the ongoing revenue and the ongoing cost of connection. This is referred to by the AER as the “Cost-Revenue” test.¹⁸
35. HoustonKemp put forward two arguments in support of the claim that it is necessary to draw a “clear distinction between the connection service and the network service” (page 10). The first is that “the cost structures of the connection service and the network service are very different” and the second is that “there are observed transactions for the connection service that occur separately from the network service, because the connection service is subject to some degree of competition”.
36. In our view, neither of these arguments are in conflict with the assumption that network services and connection services are purchased as part of a bundle and so the revenue and costs of each must be considered jointly.
37. In regard to the cost structures of connection services and network services, HoustonKemp observe:

“The costs of connection services are comprised of up-front costs that are required to connect a customer to the network and that can be causally linked to the customer’s decision to connect. In contrast, the costs of network services are comprised of both sunk and ongoing costs which must be incurred (and recovered) to support the provision of network services to customers, but which may not be attributable to any one customer” (page 10).
38. It is true that the assets to provide connection services can often be causally attributed to one customer or a group of customers. In contrast, the assets used to provide network services typically cannot be attributed to any one customer. But these observations are not relevant to the point we are making: that connection services and network services are consumed as a bundle, and it is the combined cost of that bundle versus the combined revenue of that bundle that is relevant for the incremental cost test. The cost structure of, say, videogame consoles (which involve physical electronic components) could be very different to the cost

¹⁸ [AER](#), “Connection charge guidelines for electricity customers”, April 2023

structure of videogame software (which involve digital content creation) – but this does not change the observation that consoles and software are consumed together as part of a bundle.

39. HoustonKemp’s second point is that connection services are subject to some degree of competition, whereas network services are not. In response, we observe that the fact that some services can be provided in a competitive market is not relevant to the question of whether or not those services are always purchased as part of a bundle.
40. When making a decision whether to purchase a Tesla or a Toyota motor vehicle, a customer may be aware that the Tesla can only be serviced at Tesla-branded repairers, whereas the Toyota could be repaired by a range of competing repairers. The fact that the maintenance service may or may not be provided in a competitive market is not directly relevant to the central observation: purchasing a motor vehicle is the purchase of a bundle of both the upfront vehicle and the ongoing maintenance costs and both must be taken into account when making a rational decision.
41. The provision of any or all of the assets necessary to provide an end-to-end electricity distribution service can, in principle, be provided by a third-party. Electricity distribution businesses will often use third-party providers to perform maintenance or to install specific new assets on their networks. Connection assets, in particular, can often be provided by third-party providers. However, this is not relevant to our point. The fact that an asset or a service can be provided by a third-party is not relevant to the point that connection services and network services must be considered as a bundle.
42. It remains our view that customers only purchase connection services and network services as part of a bundle that involves both services and that therefore, when applying the principles above, it is the revenues and costs of both that must be considered jointly.
43. As set out in the sections below, Vector and HoustonKemp raise the concern that allowing upfront connection charges below the full incremental cost of connection would be economically inefficient, would not be cost reflective, would result in cross-subsidies between customers, or would undermine location signals.
44. We agree that this might be the case if the shortfall (the difference between the upfront connection charge and the incremental cost) were socialised across customers. To be clear, this is not what (we understand) the Authority is proposing. Rather, in the neutral point limb, the Authority is proposing that where the upfront connection charges are below the incremental cost of connection, the ongoing charges *to that same customer* must be such as to ensure that the total revenue from that customer is equal to or exceeds the incremental cost of serving that customer.

2.3. ON THE NEUTRAL POINT LIMB

45. The regulatory framework proposed by the Authority for targeted intervention based on the balance point principle includes: (a) a ‘neutral point’ limb that ‘new connections are not subsidised by existing connections’; and (b) a ‘balance point’ limb that ‘new connections make a similar (or lower) contribution to shared network costs as similar existing connections’.
46. HoustonKemp suggest that the Authority’s concept of the Neutral Point is inefficient as it allows the upfront connection charge to be set below the direct cost of connection, resulting in cross subsidies between the services, and so promotes connections whose costs exceed their benefits – an inefficient outcome:

“setting connection prices below incremental costs necessitates an explicit cross-subsidy between connection charges and lines charges” (page 11)

47. In contrast, as we have noted above, the Authority’s definition of the Neutral Point is consistent with the incremental-cost-revenue-floor principle in a context in which connection services and network services are strong complements.
48. As noted earlier a key purpose of the incremental-cost-revenue-floor concept is to ensure that customers of one service are not forced to pay more because of additional sales to *other* customers. But the upfront charges and the lines charges paid by a customer are paid by the *same* customer. The concern to avoid cross-subsidies does not apply in the case of strong complements when the customer of both services is the same. The incremental-cost-revenue floor concept does not apply to services which are always consumed by the same customer as a bundle.¹⁹
49. To illustrate this point, consider the following (slightly absurd) example: A footwear retailer could announce a promotion in which customers only pay for left shoes and get the right shoe for free.²⁰ This could be said to be a “cross-subsidy” from left shoes to right shoes. But of course, this makes little sense. Since (virtually all) customers purchase shoes in pairs, it is only the price of the bundle (the pair) that is relevant to the consumption decision.
50. Alternatively, a furniture retailer could offer vendor financing, offering furniture with no down payment today, to be paid off over two years. Would we say that this practice is not “cost reflective” because the upfront charge is below the upfront cost? Or that this practice involves a “cross-subsidy” between upfront payments and ongoing payments? The answer is no. The same customer must pay both the upfront payments and the ongoing payments. There is no cross-subsidy.

Inefficient over-connection

51. However, having noted it is not meaningful to talk about cross-subsidies between the upfront and ongoing charges of the *same* customer, it does make sense to talk about potential cross-subsidies between different customers. This is prevented by the requirement that the total (present value) of the upfront and ongoing charges facing a customer exceed the incremental cost of serving that customer.
52. Vector writes that:

“The proposed intervention ... creates conditions that encourage inefficient investment. By pushing connection prices below incremental cost, the framework encourages parties to connect even where the economic benefits do not outweigh the costs.” (para 86).
53. Vector’s point might be correct if customers valued connection assets in their own right. But, as we have set out above, connection assets are only valued as part of a bundle that provides electricity services. It is the price of the bundle (that is, the upfront and ongoing charges) which is relevant for determining whether there is a cross-subsidy that might encourage inefficient investment. Provided the revenue from connection charges exceeds the net incremental cost (the Neutral Point) there is no cross-subsidy and no risk of inefficient over-connection.
54. Another way of saying the same thing is to use the example of Buy Now-Pay Later (BNPL) services. A customer using BNPL might make little or no upfront payments, but commits to making a series of later, smaller payments. By the logic proposed above, since the upfront payment is below the upfront cost, this

¹⁹ It may be that the connection charges are paid (in the first instance) by a different person who pays the ongoing charges. The connection charges might be paid by a developer, for example, who later on-sells the property to a customer. But in these cases the developer recoups the connection charges in the price at which the property sells. In effect the end-customer pays for both the upfront and ongoing charges regardless of who directly pays the upfront charges.

²⁰ Similarly, a car salesman could offer to sell a car and the tyres come free.

would lead to inefficient over-consumption. But this is incorrect since (rational) customers take into account the obligated stream of future payments when making their consumption decisions.

55. Extending this principle to its logical conclusion, we acknowledge that this could (in the limit) imply that an EDB could choose that customers pay *no* upfront connection charges, with the costs of the network recovered almost entirely through ongoing charges. We see no issue here in principle - indeed it is our understanding that this is the usual practice for the recovery of broadband network services in Australia and New Zealand. Specifically, we understand that the nbn (in Australia) and Chorus (in New Zealand) charge little or no upfront connection charges for most small customers seeking standard connections, with the vast bulk of revenues recovered through ongoing charges.
56. In summary, setting the upfront connection charge below the incremental cost of connection does not result in inefficient over-connection provided the sum of the upfront and ongoing charges to each customer exceeds the incremental cost of connection of that customer, as required by the Neutral Point limb.

Cost recovery risk

57. HoustonKemp and Vector suggest that by permitting upfront connection charges to be below the incremental cost of connection, there is a transfer of risk from the customer to the distribution business, and that the distribution business faces a risk of stranded assets. For example,
58. Vector writes:

“The proposed intervention “transfers risk, particularly demand and stranding risk, from new connections onto the existing customer base. Customers who do not create new demand may be required to carry the cost of investment that benefits a specific individual or business. This is the opposite of efficient, cost-reflective pricing and is not in the long-term interests of consumers.” (para 86).
59. Similarly, HoustonKemp write:

“Connection pricing below incremental cost imposes a cross-subsidy that transfers connection cost-recovery risk from the connecting customer to the distributor and its other customers. This risk transfer is the driving force of inefficiency within the Authority’s approach, with the proposed obligation to connect likely to compound the incidence of inefficient over-connection, particularly in areas of the network where demand is growing the fastest.” (page ii).
60. Similarly, Oxera note that:

“If existing users disconnect earlier than anticipated, they cease contributing their expected share of ongoing charges despite having paid an upfront connection charge that assumed continued participation.” [para 4.50]
61. We agree that paying for connection costs through on-going charges, rather than an upfront charge does involve some risk transfer (in a similar way, we might observe that a BNPL provider, or a provider of vendor finance, takes some risk that the customer will not make subsequent payments). However, we consider that - at the distribution network level - these risks are able to be effectively managed in most cases and in those cases the residual risk is low.
62. Let’s focus on the case where the upfront connection charge is set below the incremental cost of connection, with the remaining costs recovered through ongoing network charges above the cost of network services. It is correct that, to the extent that there is uncertainty in the future level or duration of demand for the connection, there is a risk that demand might drop off before the accumulated revenues associated with the connection cover its incremental costs. Put another way, we agree that, where the upfront connection charge is below the incremental cost of connection, the distribution business may face an “asset stranding risk” – in

that the demand for the connection assets might drop (possibly to zero) before the economic cost of these assets had been fully recovered.

63. In our previous reports we have commented on the magnitude of this problem and suggest mechanisms by which it can be addressed.²¹
64. On the significance of this problem, we noted that for the majority of connections under normal circumstances, the risk of asset stranding is low. Specifically, we observed that in those parts of the network which are experiencing economic growth, a standard-sized connection asset expects to continue to be utilised into the indefinite future whether or not the original customer departs. Even though individual households or businesses come and go, subsequent customers at the same location continue to consume electricity and continue to make use of the connection assets. Under normal conditions of expanding economic activity, the risk of a standard-sized connection asset close to an existing distribution network being left unemployed for an extended period is low.
65. As we noted above, we understand that the majority of the costs of the broadband infrastructure in Australia and NZ are recovered through on-going charges. Since demand for broadband services is growing, this is not considered to involve an unusual risk. We noted this in our earlier report:
- “In a world of on-going growth in demand for electricity, the risk of a standard-sized connection close to the existing network being left unemployed for an extended period is low. Stranding risk is a larger potential problem for unusually sized connections or connections in more remote locations.”²²
66. Stranding risk is a potential concern for unusual connections (i.e., particularly long or large connections, or connections where the prospect of future economic activity is low). As we noted in our earlier report:
- “When upfront costs are recovered through on-going charges, if, the connection asset ceases to be utilised before the end of its technical life, and if redeployment of those assets is infeasible, then there arises a stranding risk.”²³
67. For these (unusual) connections we pointed out that a range of mechanisms might be applied to reduce the asset stranding risk. For example, connecting parties might be required to provide bank guarantees covering the revenue stream from the connection asset for a certain number of years. Another approach is to charge termination fees for disconnecting parties.”²⁴ A third possibility is to require payment for the connection assets in full upfront.
68. Our position remains that, where a distribution business chooses to charge connection fees below the upfront direct cost of connection, the distribution business should consider the nature of the connection and make an assessment of the stranding risk, and should take steps to mitigate the risk in certain cases. We do not consider that the presence of potential stranding risk in some cases justifies imposing a uniform requirement that upfront connection charges should cover the full upfront cost of connection in all cases.

²¹ “Regulation of distribution connection charges in New Zealand”, 14 October 2024, available [here](#); “Distribution Connection Pricing – Assessment of submissions”, 2 July 2025, available [here](#); and “Connection obligations and interim restraints on connection charges”, 13 November 2025, available [here](#).

²² CEPA, July 2025, para 176.

²³ CEPA, July 2025, para 178.

²⁴ See CEPA, July 2025, para 181.

Contestability

69. HoustonKemp has also argued that permitting upfront connection charges to be below the incremental cost limits competitors' ability to compete for the provision of contestable connection services. Oxera make a similar point:

“if Vector reduces the extent of its upfront charges, it will be better placed to compete with third parties...not[ing] that it may not be feasible for third parties to defer recovery of connection charges, given that they do not have an ongoing relationship for ongoing charges with electricity network users, as Vector does” [p.9]

70. We agree that – if no further obligations are imposed – setting upfront connection charges below the incremental cost of connection would limit the scope for competition in the provision of connection assets. The upfront connection charge in effect represents the maximum price the customer would rationally pay a third-party for the connection asset. If the upfront connection charge only covers, say, half of the distribution network's own cost of providing the connection, a third-party provider would have to be able to provide the connection assets at half of the cost of the incumbent in order to be able to compete. This clearly limits the ability of third-parties to compete in this market.

71. But, as we noted in our previous reports, there is a potential solution: the EDB could be required to contribute to the cost of the connection assets provided by third parties. For example, if the connection asset costs \$10,000 and the upfront connection charge is \$6,000, the EDB would be required to make a contribution of no less than \$4,000 towards the provision of the asset by a third-party. This payment levels the playing field between the incumbent and third-parties. The customer can either choose to connect with the incumbent and pay \$6,000 or, if the customer can acquire the connection asset for less than \$10,000 from a third-party, the customer (after receiving the rebate of \$4,000) would be better off by choosing a third-party provider. Contestability is restored. Provided some obligation of this kind is in place, setting an upfront connection charge below the connection asset cost is compatible with contestability.²⁵

72. We have been informed by the Electricity Authority that this is the current practice for several EDBs in New Zealand. For example, Aurora explicitly allows connecting customers to choose their own provider of connection assets. Aurora has published the amounts that Aurora will pay the customer for each size of connection as set out in the table below.²⁶

²⁵ CEPA, July 2025, para 186.

²⁶ This is set out in the document Aurora Energy, “Connection Pricing and Capital Contribution Policies”, 1 April 2026.

- 25 Aurora Energy will contribute a maximum fixed amount toward new connections, as noted in Table 3.

Table 3: Maximum investment value (MIV) for other connections

Connection capacity	MIV
15kVA (1/63A)	\$6,000
41kVA (3/63A)	\$7,000
69kVA (3/100A)	\$8,000
103kVA (3/150A)	\$12,500
138kVA (3/200A)	\$16,500
173kVA (3/250A)	\$19,500
207kVA (3/300A)	\$22,000
276kVA (3/400A)	\$26,500
300 kVA	\$39,000
500 kVA	\$42,000
750kVA	\$45,000

73. We continue to hold the view that setting connection charges below the incremental costs of connection is compatible with promoting contestability in the provision of connection assets.

2.4. ON THE BALANCE POINT LIMB

Price discrimination, economic efficiency and equity

74. HoustonKemp has argued that the balance point limb (that similar customers make the same contribution to the shared network costs) lacks an economic foundation and “does not promote economic efficiency”. HoustonKemp further states its view is that “the balance point is an approach to recovering connection costs that seeks to target a type of intergenerational equity”, and that this is not consistent with its statutory objectives of promoting competition and economic efficiency.

75. HoustonKemp go on to observe:

“The Authority’s approach and proposed intervention options reveal consideration of equity as its fundamental objective in this context, rather than its statutory objectives of efficiency and competition. That is, we observe that the Authority:

- promotes the balance point principle as an efficient outcome, whereas the balance point is the price level that maintains a particular view of equity as between new and existing customers and not founded in the principle of economic efficiency ...

- discounts the ability for price-discrimination to improve allocative efficiency in this context.” (page 31).²⁷

76. As we set out earlier, we agree with HoustonKemp that certain forms of price discrimination (provided the prices are set in advance) can enhance economic efficiency. We understand that the Authority’s proposals will not prevent EDBs from creating new customer classes from time to time as required, with each class potentially having different upfront and ongoing charges, with a different contribution to the common costs of the network. In other words, we understand that the Authority’s proposals will not prevent “ex ante” price discrimination.
77. However, as we noted earlier, specific types of price discrimination can create economic harm. This arises, for example, when the regulated business has the ability to set prices ex post (after customers have made sunk investments) and on a case-by-case basis. We previously explained this as follows:
- “No matter how the common costs are allocated (by Ramsey pricing or some other method) ex ante, once an allocation mechanism is determined there should be limited opportunity for the regulated business to vary prices on a case-by-case basis. The reason is that, as we have seen, customers may differ in how much investment they have made in reliance of the services of the regulated firm. If the customer finds that, once they have made a sunk investment which increases the value they place in regulated service, the regulated firm responded by increasing the price, the customer would have little or no incentive to make that investment in the first place.” [para 141]
78. As we have argued in our previous reports, we consider that constraints on “undue price discrimination” are a common feature of regulatory regimes around the world. Although the terminology of “balance point” is, to our knowledge, unique to the Authority, the principle of constraints on price discrimination is not.
79. HoustonKemp also state that “CEPA’s endorsement of the balance point concept is carefully worded and does not suggest that it promotes the Authority’s statutory objective by reference to economic efficiency or competition.” (page 17). For the avoidance of doubt we have previously addressed the issue of the Balance Point as an efficiency argument (as set out in paragraph 20 above).

Application of the hold-up concept

80. As we noted above, the argument that ex post price discrimination can be harmful, is based in the observation that ex post price discrimination can expropriate the value of sunk investments. This is known in the economics literature as a form of “hold up”.²⁸
81. HoustonKemp expresses the view that the hold-up argument used by the Authority is “without foundation” or “not well-founded”. HoustonKemp cite the Authority as follows:
- “Where pricing is determined case-by-case, a distributor can set charges at a level that extracts maximum value from an applicant that has made sunk investments prior to procuring their connection. For example, an applicant may invest in property, planning and design prior to securing an electricity connection (or

²⁷ In other places HoustonKemp write: “the Authority’s proposed intervention is principally driven by concerns around intergenerational equity, which stands in contrast to the decision-making framework based around economic efficiency”; “The Authority’s proposal to intervene in connection pricing with the balance point as the key pricing concept is not motivated by and does not align with principles of economic efficiency”; “[e]conomic regulators have rarely given significant direct consideration to issues of intergenerational equity, in contrast to the Authority’s focus on the balance point in this context.”

²⁸ Hold-up occurs when one party in an economic relationship makes a sunk investment and the other party subsequently changes the terms and conditions of trade in an adverse manner. The threat of hold-up has a chilling effect on investment.

upgrade). If the applicant cannot proceed without the connection, and does not have a choice of distributors, the distributor is in a position to ‘hold up’ the applicant and extract the value from their investment.” (page 18).

82. HoustonKemp go on to comment:

“The concerns expressed in these paragraphs appear to be about price discrimination and the shifting of economic rents between connection applicants and existing connections. They do not relate to the hold-up problem. In any case, there is no basis in economic efficiency for either concern.” (page 18).

83. We agree that the concerns expressed in these paragraphs could arise in a context of shifting economic rents between connection applicants and existing connections. This would still constitute a case of hold-up. New customers of distribution networks must make a sunk investment in property, planning and design, as well as the investment in establishing business processes and finding customers. Let’s suppose that a distribution business has a policy of raising the charge for each new connection on a case-by-case basis to a level sufficient to extract all of the economic value of the investment by the connecting customer. Such a policy would have a deterrent effect on customers thinking about establishing a business which relies on a connection to the distribution system.

84. To the extent that this policy results in a reduction of revenues received by the EDB from ongoing charges via the Commerce Commission’s price-quality path determinations²⁹, the policy results in a transfer of rents from new customers to existing customers. But – even though this is a shifting of rents between customers of the EDB – this is still a form of hold-up, and still has a chilling effect on the incentive to develop new businesses that rely on the distribution network, with resulting harm to economic efficiency.

85. HoustonKemp go on to argue that a hold-up problem could arise if distributors *reduce* (rather than increase) their connection charges over time:

“Concerns about hold-up would only arise in relation to connection pricing where distributors are expected to reduce their connection charges over time. To the extent that total charges are simply distributed between connection charges and lines charges as conceptualised by the Authority, reducing connection charges and increasing lines charges (relative to what they would otherwise be) may be seen as expropriating the connection investments of existing users. It follows that concerns about decreasing connection charges may potentially hold up connection investments.” (page 19).

86. We agree. HoustonKemp is correct that a reduction in connection charges to some customers which results in an increase in ongoing charges to other customers *could* also give rise to a hold-up problem – but now the hold-up is focused on the ongoing (rather than the new) customers. Ongoing customers typically have made substantial investment in reliance on access to the distribution network. This investment is reflected in investment in electrical appliances and equipment, and in developing business processes and a customer base in reliance on the expectation of an ongoing supply of electricity. If connection charges are reduced to some newly-connecting customers to the extent that the net incremental cost test is not satisfied, ongoing charges for other customers must increase via the Commerce Commission’s price-quality path determinations. This would expropriate the value of the sunk investments for the ongoing customers, reducing their incentive to invest in reliance on access to the distribution network.

²⁹ This could happen in two ways: Either the Commerce Commission, in setting the revenue allowance, factors in the higher expected revenue from capital contributions ex ante, resulting in less revenue to be raised through other charges or, if the increased revenue is not anticipated in advance, the operation of the incentive schemes would ensure that ex post a proportion of that increased revenue is passed through to customers in the form of lower prices.

87. This is precisely why the Authority is proposing that connection charges for new customers should not be less than the Neutral Point. The Neutral Point principle ensures that, if connection charges are reduced for some new connecting customers, the ongoing charges *for the same customers* must be increased to the point that the total revenue received from those customers exceeds the incremental cost of serving those customers. This ensures that no *other* customers will be required to pay more to fund the cost of these new connections.
88. HoustonKemp is correct to be concerned about reductions in connection charges for new customers that are not matched by a corresponding increase in ongoing charges to the same customers. This would represent a form of hold-up and, as we have argued above, should be prevented by the Neutral Point principle.

Balance point unclear or unimplementable

89. HoustonKemp and Vector have commented on the practicality of the balance point limb and the targeted approach to its application:
- “The ‘balance point principle’ is framed in comparative terms rather than cost-based terms, which makes it hard to translate into an implementable metric.”³⁰
- “It is unclear what the Authority means where referring to ‘undue’ price discrimination”³¹
90. Oxera also raises this concern:
- “The EA plans to intervene ex post when it has concerns that its balance-point principle may not have been met, without giving clear ex ante regulatory guidance on how costs should be allocated. This does not provide sufficient clarity to distributors about how to mitigate the risk and costs of the EA’s targeted interventions, and hence increases regulatory risks.” (page 6)
91. Let’s put aside, for the moment, the issue of “shallow” versus “deep” connection charging, which we discuss further in the section below.
92. As we have emphasised above, we consider that the balance point limb is a control on price discrimination and therefore *must be* expressed in comparative terms. The intention is not to set a specific *level* of prices, but rather to prevent inappropriate changes in prices for new customers compared to the treatment of existing similar customers.
93. We consider that there is a role for the Authority to provide guidance on what forms of price discrimination will be allowed. The Authority’s proposals are designed to strike a balance between allowing a degree of flexibility in pricing while not allowing EDBs to set prices to each connecting customer based on the time of their arrival, or even on a case-by-case basis. There is inevitably a degree of tension here.
94. As time passes new business models and new uses and applications for electricity emerge (e.g., data centres or desalination plants). The EDBs’ pricing structures must be flexible enough to allow new cost allocations for new classes of customers without being so flexible as to allow the EDB to set a different charge for *each individual* connecting customer. Getting the balance right on what forms of price discrimination are acceptable is one of the core trade-offs at the heart of economic regulation and is one of the judgements that the regulator is required to make.

³⁰ Vector, para 21.

³¹ HoustonKemp, page 19.

95. However this tension between flexibility and certainty for customers is unlikely to emerge during the timeframe for the proposed targeted intervention based on the balance point, which is scheduled to expire in April 2030. These issues might be considered by the Authority in considering longer-term reform to distribution connection charging.
96. In summary, we anticipate that the Authority may wish to provide further guidance as to what is acceptable and what is not – but we stress that there will always be a tension between allowing flexibility to respond to changing circumstances and setting stable prices on which customers can rely when making their own decisions.

2.5. OTHER ISSUES

Market power

97. HoustonKemp has suggested that the Authority’s proposal is inconsistent with measures that might be taken to address an EDB’s market power with respect to connection charges. That is, were market power of concern to the Authority, then HoustonKemp suggests two alternatives that the Authority might have undertaken:

“the mandating of contestability (or some form of contestability) so as to address the perceived market power of distributors; or the placing of limits on connection charges to prevent them exceeding some measure of actual or average connection costs, i.e., similar to the Authority’s ‘allocation limits’ proposed intervention option.” (page 26).
98. HoustonKemp argues that because “[t]he Authority’s proposed intervention differs substantially from these approaches...It appears to us that the Authority’s proposed intervention is not primarily motivated by a desire to address concerns about market power by distributors in the provision of connection services.” (page 26).
99. In contrast, in our view the Authority’s proposal is directly targeted at market power.
100. In regard to market power exercised at the level of the EDB as a whole, we acknowledge that this is constrained by the regulatory framework imposed by the Commerce Commission. We understand that the revenue cap imposed by the Commerce Commission is intended to constrain the ability of EDBs to raise revenue above the efficient costs of providing network services. Therefore, the concern of the Authority is not with market power at the level of the business as a whole, but market power targeted at specific customers – in particular newly-connecting customers – through controls on the ability to raise connection charges.
101. As HoustonKemp observe, it would in principle be possible for the Authority to dictate specific cost-based limits on connection charges as a tool to limit market power. However there are a large number of different types of connecting customers. Setting the connection charges for each class of customer is a complex exercise. The Authority is not in the best position to determine the appropriate share of contribution to fixed and common costs of each of these different customer classes. This cost allocation is probably best left to each EDB. In addition, different EDBs may have different preferences over how much of the connection costs should be recovered through upfront versus ongoing charges. These issues are best left to the discretion of each EDB.
102. For this reason the Authority is not proposing to require that upfront connection charges do not exceed some measure of costs. Rather, the Authority’s intervention is limited to requiring that, once the contribution to the

common costs is determined for a particular customer class, it is applied equally to all customers in that class – including newly-connecting customers – in order to address the “hold-up” problem.³²

103. We agree with HoustonKemp that another – largely equivalent – approach to controlling market power is to mandate contestability and to place a floor on the amount that each EDB must pay in the event of third-party provision of the connection assets.
104. For example, let’s consider again the example provided earlier where the connection assets costs \$10,000 and the EDB charges the customer an upfront charge of, say, \$6,000 for the connection (with the balance to be recovered through ongoing charges). In this case the EDB would be required to make contribution of no less than \$4,000 if the connection asset is provided by the customer.
105. This mechanism controls the market power of the EDB. If the EDB tried to set the upfront charge at, say, \$7,000 in this instance then (provided the EDB continued to make a payment of \$4,000 for self-provision of the connection assets), the customer could procure the connection assets from a third party (at a cost of \$10,000 say) and be better off (with a net outlay of \$10,000-\$4,000 = \$6,000 which is better than the \$7,000 connection charge). We agree that mandating contestability, when combined with the mechanism described here, would effectively constrain the market power of the EDB as intended by the Authority.
106. In summary, we disagree with HoustonKemp that the Authority is not seeking to control market power. Rather, as we have said in the past:

“We consider that ... the proposals of the Authority are fundamentally based in market power concerns...It is the presence of market power which allows EDBs to, say, charge different amounts to different customers based on their time of arrival”³³

Use of terminology

107. Oxera expresses the concern that the Authority does not use standard cost-allocation terms:
- “The EA does not use standard cost-allocation terms. It does not specify how its cost standard definitions, such as the balance point principle, map against standard measures of cost allocation, such as long-run incremental costs (LRIC) or fully allocated costs (FAC)” (page 6).
108. We agree that the Authority does not use standard terminology. We agree that in principle it is desirable for regulators to use conventional terminology where possible. However, we consider that the terms used by the Authority are based in sound economic principles and a sound framework. We therefore have no particular concerns with the terminology.

Shallow vs Deep Connection Charges

109. Oxera raise a concern that the Authority’s proposals would prevent a “rebalancing” of network charges over time. Oxera write:

³² For example, let’s assume that an EDB decides that it will recover, a certain amount per annum (e.g., \$2,000) from each customer in a given customer class and each customer in a customer class pays the same ongoing charges. The EDB could then set the connection charges (and ongoing charges) in such a way as to recover the contribution (of \$2,000 in this case). But the EDB would then be prevented from subsequently raising the connection charges for customers in that class since doing so would lead to a greater contribution from these customers. Note that this does not prevent the EDB from raising the ongoing charges to all customers in this class.

³³ CEPA, July 2025, Box under para 37.

“The balance-point principle prevents networks from adjusting the proportion of shared network costs recovered through upfront and ongoing charges from one cohort of users to another, over time.” (para 4.34).

110. Oxera links this to the question of “shallow” versus “deep” connection charges. Oxera notes that:

“It appears that the EA is concerned about Vector’s move over time from a relatively shallow charging regime to a deeper one—as evidenced by the EA’s focus in the Consultation on a higher level of upfront connection charging over time”. (page 4).

111. As we understand it, the issue of “shallow” versus “deep” connection charges relates to the nature and complexity of the task of calculating the incremental cost of connection. On the one hand, it can be relatively straightforward to identify assets which are directly attributable to a customer’s connection and therefore should be included, as a minimum, in the incremental cost of connecting that customer. However, the connection of a customer could (and generally should) also require a degree of augmentation further “upstream” from the point of connection of the customer. Calculating and attributing those “deeper” upgrades – although formally a legitimate component of the incremental cost – is a much more complex exercise. For this reason, many regulatory regimes in practice are content to identify only the direct connection assets, leaving any further upgrades upstream to be incorporated in the common costs.

112. In other words, the key difference between “shallow” and “deep” connection charges is the difference in the effort that is put into attributing costs to a particular customer, and therefore the relative share of attributable and common costs. A shallow connection regime involves relatively lower incremental costs and relatively larger common costs. A deep connection regime allocates more of the total costs to particular customers, leaving relatively lower common costs. In either case, the total costs of the network remain the same. We will refer to this choice between a “deep” or “shallow” approach as the choice of a “costing methodology”.

113. Oxera raise a concern that the balance point limb might prevent an EDB from moving from, say, a shallow costing methodology to a deep costing methodology.

114. We address this point below. First let’s take a step back. At a given point in time it is possible that an EDB might find that it has inherited a charging structure which does not satisfy the neutral point limb. That is, it might be that the (upfront and ongoing) charges for some customers fall short of the (upfront and ongoing) incremental costs. As we have seen, this is undesirable. Under the Authority’s proposed reforms, the EDB would be required to adjust these charges to bring them into alignment with the Neutral Point principle.

115. This situation might arise, for example, where the EDB engages in geographic averaging of its charges, so that some (particularly high cost) customers end up paying less than the incremental cost of serving those customers. It might also arise because of inertia in charging structures – where prices are set at one point in time, but underlying costs change, it could be that some customers are offered connection at less than the cost of serving those customers. Again, where these situations arise the first limb of the proposed reforms would require the EDB to bring these charges into line with the Neutral Point principle.

116. Importantly for the present discussion, this situation also might (in principle) arise where an EDB has historically used a shallow connection costing methodology and is considering moving to a deeper methodology.

117. For example, it might be that the direct, easily-observable cost of providing a connection is, say, \$6,000, but the true incremental cost (including the cost of deeper network upgrades) is, say, \$10,000. Under the shallow costing methodology, the EDB might set the charges (upfront and ongoing) to recover the \$6,000. If the EDB subsequently decided to move to a deep costing methodology, it might discover that the true incremental cost of serving this customer is, say, \$10,000. In this case the first limb of the proposed reforms would require the EDB to rebalance its charges to bring those charges into line with the Neutral Point principle. In

other words, in this case where the connection charges are (for historical reasons) incompatible with the Neutral Point principle, a move from a shallow to a deep connection methodology *would require a change in the structure of tariffs* faced by different customers. Moreover, not only would such a change not be prevented by the proposed reforms, we understand that such a change would be *required* by the Authority's proposed reforms.

118. Let's now deal with the case where the EDB's charges satisfy the Neutral Point principle before and after a change in the costing methodology. In this case, a shift from shallow to deep connection charges or vice versa need not change the total revenue contribution of each class of customer. The total volume of common costs may change, and the amount of contribution to common costs from each customer class may change, but the total amount paid by each customer class can remain the same. In other words, it is straightforward to ensure that each customer class makes the same contribution as before. The Authority's proposals would not prevent a change from a shallow to a deep methodology or vice versa.
119. For example, let's suppose we have three customer classes A, B, C. Let's start with a "shallow" costing methodology which allocates \$50m in incremental cost to each customer class and \$70m in common costs, which are distributed across customer classes \$10m, \$20m, \$40m (so that the total charges are A:\$60m, B:\$70m and C:\$90m to the three customer classes). Now suppose we move to a "deep" costing methodology which allocates \$60m in incremental cost to each customer class, leaving \$40m in common costs. The common costs can now be allocated A:\$0m, B:\$10m, and C:\$30m. The amount of the common costs has changed, and the allocation of those costs across customer classes has changed, but the total amount charged to each customer class remains the same.
120. To summarise, the balance point limb of the Authority's reforms requires that different generations of customers within the same customer class pay the same contribution to shared network costs over time. A shift from deep to shallow costing methodology (or vice versa) changes the amount of shared networks costs, but (since total network costs remain the same and since each customer class pays an amount which exceeds the incremental cost of serving that customer class), it remains straightforward to allocate the shared network costs in such a way that the total amount paid by each customer class does not change. The balance point limb of the reforms can be satisfied despite a change from shallow to deep connection charging.

Differences between transmission and distribution methodologies

121. Both Vector and HoustonKemp assert that the Authority's proposed approach to distribution connection pricing is different to the approach to transmission connection pricing, "without clearly explaining why these differences are justified"³⁴.
122. In the time available to us we have not reviewed the Transmission Pricing Methodology or the documents and issues considered during its development. Our comments here are based in economic principles and our understanding of the issues raised by Vector and HoustonKemp.
123. We agree with HoustonKemp and Vector that there are similarities in the cost structure of transmission and distribution networks. Specifically, as Vector suggests, we agree that "In both cases, connection assets are long-lived, capital-intensive, built to serve specific users or groups of users and investment is likely to present economies of scale"³⁵. Having said that, the customers of distribution networks tend to be very different in size and sophistication to the customers of transmission networks which justifies a difference in treatment.

³⁴ Vector, para 74.

³⁵ Vector, para 77.

124. Although there are exceptions, distribution network customers tend to be relatively small, relatively consistently sized, and for which electricity is only a small part of their activities. In contrast, transmission network customers (e.g., generators, large loads, distribution networks) tend to be very large, bespoke, and (at least in the case of electricity generators) it is often the case that transacting electricity is a core part of their business. These differences can explain how the same set of principles can lead to different pricing policies at the transmission versus distribution level.
125. In the case of both transmission and distribution there is a general principle that connecting customers should pay at least the incremental cost of connection. This is the neutral point limb of the Authority’s proposals. As we have emphasised earlier, we do not consider it essential that the incremental cost be paid in full upfront – it could, instead, be paid off over time – but the principle remains that each connecting customer should contribute at least the incremental cost of connection.
126. This is the approach that Vector (citing the Authority) asserts applies at the transmission level, which it describes as:
- “... market-like, service-based, cost reflective, and efficient. It ensures that customers face the true cost of their connection decisions, helps avoid cross subsidies between users, and provides strong signals about where and how new connections should occur.” (para 75).
127. We observe that the Authority’s proposals require that the same approach applies at the distribution level (through the neutral point limb). Specifically, the Authority, in requiring that the revenue from each customer covers at least the incremental cost is ensuring that charges are cost-reflective and send appropriate location and investment signals. We see this as consistent between the transmission and distribution network level.
128. The remaining question is whether the Authority should *insist* that the incremental costs of connection are paid upfront or *allow* EDBs the option of recovering the incremental cost of connection over time.
129. As set out in the table below, transmission customers tend to be large and have bespoke connection requirements. When a large transmission customer such as a generator shuts down, it is relatively unlikely that its connection assets will continue to be used by another customer at the same location. Transmission customers also tend to be relatively large, sophisticated companies with access to credit and therefore able to finance their own connection assets in full upfront. In contrast, as we noted earlier, standard-sized distribution network connections have a high probability of being re-used when the distribution customer leaves. At the same time distribution customers are often small and credit constrained. For these reasons we consider it is reasonable for the regulatory framework to treat transmission and distribution connection charges differently – specifically, it would be reasonable for the regulatory framework to require transmission networks to charge connecting customers for connection assets upfront (perhaps offering financing terms), while allowing distribution networks the option of recovering the cost of connection assets from customers over time.

	Distribution customers	Transmission customers
Assets bespoke to the business plan of the customer?	Not normally; assets can usually be re-used when a customer changes.	Assets usually bespoke, limited or no opportunities for re-use.
Credit constrained?	Often small customers with limited access to credit.	Large, sophisticated customers with access to credit.

Connection charging methodology

Regulatory requirements may lean towards allowing distribution networks to charge less than incremental cost upfront, recovering remainder in ongoing charges.

Regulatory requirements may lean towards requiring transmission networks to charge full incremental cost of connection upfront (possibly while offering financing terms).

130. In summary, differences in the characteristics of the customers of transmission and distribution networks could justify differences in the connection charging methodologies, despite the same principles applying.
131. HoustonKemp makes the following points:
- In its 2020 Transmission Pricing Methodology guidelines, the Authority states that the purpose of the transmission connection charge is to recover the costs of the investments that connect customers assets to the interconnected grid.³⁶
 - In its 2016 Transmission Pricing Methodology: Second issues paper, the Authority states that due to the presence of economies of scale, the efficient approach is to set connection charges equal to the full cost of connection assets.³⁷ Since distribution networks also exhibit economies of scale, it follows for consistency that the distribution connection charges should be set at the full incremental cost.
 - The Authority has previously set out a conceptual framework for transmission pricing, with a “hierarchy of charging approaches”. When applied to distribution pricing it leads to a different outcome than proposed by the Authority.
132. In regard to the first point, we acknowledge that the 2020 Guidelines to the Transmission Pricing Methodology sets out a purpose for each component of the Transmission Pricing Methodology. The purpose of the “connection charge” is stated as “to recover the cost of the connection investments”. We do not understand this to require that the full incremental costs of the connection should be recovered upfront.
133. In regard to the second point above, pages 33-34 of the May 2016 Issues Paper include a discussion of regulatory pricing under economies of scale. This section observes that in the presence of economies of scale, charging for connection services at short-run marginal cost (SRMC) would not raise sufficient revenue to cover the total costs. Instead, the solution is to recover the fixed cost of the network (including the fixed cost of the connection assets) through fixed charges. Importantly, the Issues Paper does not envisage that the connection costs will be recovered in full in an upfront charge – instead it explicitly envisages that the connection costs will be recovered in charges *over time*. This can be seen by examining the full quote:
- “5.29 However, investment in connection assets typically exhibit large economies of scale. The efficient approach in this case is to charge the full cost of connection assets by: (a) charging a maintenance fee based on the actual amount of maintenance work undertaken on the connection asset. **In practice, the fee would be charged monthly, as a flat \$/month rate** (b) **charging for capital costs on a \$/year basis**. The size of the charge depends on the capital outlay on the connection assets, on their depreciation rate and on the provider’s cost of capital.” (emphasis added).³⁸
134. In other words, the discussion and the specific quote highlighted by HoustonKemp does not support the argument that the incremental costs of connection should be recovered in full through an upfront charge.

³⁶ HoustonKemp, page 32.

³⁷ HoustonKemp, page 32.

³⁸ Electricity Authority, Transmission pricing methodology: issues and proposal, Second issues paper, 17 May 2016, para 5.29.

Rather, the quote cited by HoustonKemp clearly explicitly envisages that such costs will be recovered through ongoing charges, as the Authority proposes to allow with respect to distribution. In short, this quote supports the approach of the Authority.

135. In regard to the “hierarchy of charging approaches”, on page 24 the Issues Paper observes that where market-based prices are not feasible, the next best approach is to set prices which make economic actors face the costs of their actions. HoustonKemp observe that “charges that are based on incremental cost reflect ‘exacerbators pay’ charges and have properties that are preferable (in terms of their contribution to economic efficiency) to charges that are below incremental cost and that are motivated by broader equity concerns”. As noted earlier, the Authority’s proposals require connecting parties to pay at least the incremental costs of their actions, which is fully consistent with the “exacerbators’ pay” charging approach. We note that this principle is silent on the choice between upfront and ongoing charges.
136. In summary, we agree that there is merit in comparing and contrasting the approach to transmission pricing and distribution pricing, to make sure they are consistent or that any inconsistencies are justified. We have not reviewed the Authority’s Transmission Pricing Methodology, but we have examined the arguments raised by Vector and HoustonKemp and we consider that these do not give rise to a concern about inconsistency of treatment between transmission and distribution.

3. CONCLUSION

137. HoustonKemp observe the following:

“We ... demonstrate that a more conventional economic framework would result in an approach which seeks to promote connection charges that are market-based and cost-reflective. Such an approach would target connection charges be set at incremental connection costs, promoting allocative efficiency, while also promoting competition for the provision of these services, to the extent that connection services are contestable.” (page 27).

138. In response, we observe, as set out in this note:

- The framework used by the Authority is consistent with a conventional economic framework and consistent with the statutory objectives of efficiency and competition. It seeks to promote connection charges that are market-based and cost-reflective in the same sense that sound public utility regulation seeks to promote charges that are market-based and cost-reflective.
- We do not agree that good regulatory principles or the Authority’s statutory objectives require that connection charges should be set at incremental connection costs. Instead:
 - The correct application of the incremental-cost-revenue-floor concept is that the revenue from connection plus the revenue from ongoing charges should exceed the incremental cost of connection plus the incremental cost of ongoing network services. This is the foundation of the Neutral Point principle.
 - If all services were charged at their incremental cost the service provider would not be able to recover any of its common costs. Some services must be able to recover above their incremental costs. The Authority allows EDBs to charge a different contribution to common costs from different classes of customers. The Balance Point principle ensures that similar customers are treated alike over time. This limits the ability of EDBs to discriminate between similar customers, giving potential connecting customers an assurance of their connection costs before they build their business case and choose a connection location. This preserves and promotes incentives for investment and connection, promoting dynamic efficiency.
- The Authority’s proposal recognises that promoting contestability in the provision of connection assets is important and sets out mechanisms to maintain contestability even when the upfront connection charge is below the incremental cost of connection.



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