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Response to submissions on the Electricity Authority's proposed distribution pricing Code amendment

A report for Vector

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Executive summary

We have been engaged by Vector to respond to the key economic points raised in submissions to the Electricity Authority's (the Authority's) consultation paper. Our review of the submissions to the Authority has not caused us to change the opinions we expressed in our first report, and in some areas have strengthened the degree of our concern with the Authority's proposals.

In our opinion, the key elements of the Authority's proposal as they relate to controls on the level of connection prices, ie, its full reform proposal and its reliance limits, are not aligned with the Authority's statutory objective, are not well grounded in economic principle and are not supported by empirical evidence.

Objectives of distribution connection reform

The Authority's statutory objective limits its focus to matters that will promote competition and economic efficiency, or its additional objective to protect the interests of small customers in their dealings with industry participants.

Other submissions support or encourage broader objectives to the Authority's distribution connection reform. In contrast, our first report proceeded on the understanding that the Authority can support electrification and broader public policy objectives, such as those set out in the government's electricity policy statement, only within the bounds of its statutory objective

The Authority's use of the 'balance point' as the ceiling of its proposed range of connection charges and its proposal for limits on the aggregate reliance on connection charges to fund capital expenditure, suggest objectives that extend beyond economic efficiency and competition.

Authority's problem definition

Consistent with the observations of a significant number of submitters, the Authority's concerns about economic efficiency are not supported by empirical evidence. In particular, the Authority's concerns about increasing reliance on connection charges are not matched by any assessment of these against efficient levels. Many submitters noted that the concerns raised by the Authority about perverse incentives arising from the Commerce Commission's regulatory framework would better be addressed through changes to that framework.

Economic efficiency

The Authority's claims efficiency benefits for aspects of its reform proposals that are unlikely to eventuate. Because the floor of its presumed efficient range of connection prices falls below incremental cost, this may give rise to inefficient connection outcomes. It is widely noted by submitters that there is no connection between the Authority's proposed reliance limits and efficient connection pricing.

The Authority and submitters concur that standalone cost is the upper bound for a 'subsidy free' connection price – and any price above the standalone cost will always be inefficient. However, this upper bound does not define the range of efficient prices for each customer because the opportunity cost of connection may fall below standalone cost for some customers, as Sapere appears to suggest. The Authority appears to recognise this in its proposals.

There is no economic or regulatory consensus in favour of shallow or deep connection pricing in all circumstances, in contrast to statements made by Sapere. The Authority's proposal to allow for distributors to adopt deep connection pricing through posted capacity rates appears to offer one potential approach for balancing the efficiency benefits of deep connection pricing while retaining some elements of the certainty and simplicity of shallow connection prices.

The balance of evidence that we have reviewed in submissions appears to suggest that the administrative costs associated with pioneer schemes are likely to be substantial, and that there is a possibility they will not be proportionate to the benefits. This calls into question whether pioneer schemes will support economic efficiency to the extent assumed by the Authority.

Competition

In addition to our concerns about efficiency, the Authority's proposal to use the 'neutral point' as the floor of its presumed efficient range of connection charges would allow for connection prices that are below incremental cost and could deter the development of competition for connection services. This observation aligns with the logic Frontier has used to critique the Authority's reliance limits proposal from a competition perspective.

This situation can give rise to harm to competition in the market to provide connection services, because firms that wish to compete against distributors in these markets may be unable to do so when prices are set below incremental cost.

Following our review of submissions, our conclusion in relation to competition remains in line with our first report, ie, that the neutral point is not an appropriate lower bound for connection prices where the objective is to promote competition for the provision of connection services.

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 received a number of submissions from stakeholders as part of its consultation process on its proposed Code amendment,[1] including the following reports from economic consultants:

- Sapere's report for Drive Electric;[2]
- Incenta's report for Electricity Networks Aotearoa;[3]
- Frontier's report for Powerco and Unison;[4] and
- Axiom's report for Vector.[5]

We have been engaged by Vector to respond to the key economic points raised in submissions to the Authority's consultation paper, with a particular focus on the four economic reports listed above.

We prepared an earlier report for Vector ('our first report'),[6] which focused primarily on the economic reasoning that underpins the Authority's full reform proposal.

The remainder of this report is structured as follows:

- in section two, we discuss the objectives of distribution connection reform and how this compares to the objectives disclosed or applied in submissions to the Authority;
- in section three, we review the commentary on the Authority's problem definition that has been put forward in submissions to the Authority;
- in section four, we provide our opinion on the economic efficiency arguments raised in submissions to the Authority; and
- in section five, we provide our opinion on competition arguments raised in submissions to the Authority.

[1] 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. See: Electricity Authority, *Distribution connection pricing proposed Code amendment*, Consultation paper, 25 October 2024 (hereafter 'consultation paper');
- a draft of the proposed Code amendment. See: Electricity Authority, *Proposed Code amendment*, 25 October 2024 (hereafter 'proposed Code amendment'); and
- a report prepared by CEPA Australia (CEPA) for the Authority that reviews the regulation of electricity connection charges. See CEPA, *Regulation of distribution connection charges in New Zealand*, 14 October 2024 (hereafter 'CEPA report').

[2] Sapere, *Review of the Electricity Authority's proposed amendments to Part 6*, December 2024 (hereafter 'Sapere report').

[3] Incenta, *Electricity Authority's consultation on price and non-price aspects of customer connection*, December 2024 (hereafter 'Incenta report').

[4] Frontier, *Efficient pricing of distribution network connections*, 18 December 2024 (hereafter 'Frontier report').

[5] Axiom Economics, *Economic review of problem definition – a report for Vector*, December 2024 (hereafter 'Axiom report').

[6] HoustonKemp, *Review of the Electricity Authority's proposed distribution pricing Code amendment – a report for Vector*, 20 December 2024 (hereafter 'our first report').

2. Objectives of distribution connection reform

In this section we comment on the objectives of distribution connection reform, and the areas of agreement and disagreement in relation to those objectives between the economic reports submitted to the Authority's consultation.

2.1 Promotion of economic efficiency and competition

Our first report described the Authority's statutory objective and the key economic concepts that are invoked by the Authority's statutory objective – ie, economic efficiency and competition. These concepts informed our assessment of the Authority's problem definition and proposed reforms.

The Authority explained that its main objective is:[7]

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

The Authority's statutory objective includes an additional objective to protect the interests of domestic consumers and small business consumers in relation to their dealings with industry participants. Specifically, the Authority explained that it also has an 'additional objective' to:[8]

> …protect the interests of domestic and small business consumers in their dealing with industry participants.

We concluded from our assessment that the Authority's statutory objective:[9]

- has a strong focus on the promotion of economic efficiency and competition; 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.

We discuss specific issues raised in submissions to the Authority as they relate to economic efficiency in section 4 below and as they relate to competition in section 5 below.

In the remainder of this section we discuss other objectives that appear to have been proposed in economic reports submitted to the Authority's consultation, in relation to;

- the delivery of electric vehicle (EV) charging infrastructure; and
- the role of equity considerations.

2.2 Delivery of electric vehicle charging infrastructure

A number of submissions refer to the delivery of EV charging infrastructure and promotion of government policy as objectives that the Authority should work towards. Some submissions also refer to the New Zealand government's policy of deploying 10,000 electric vehicle charging points.

For example, Sapere's report appears to be prepared in support of an electrification objective. This is disclosed in Sapere's report, in which it assesses the Authority's proposals against a series of principles:[10]

[7] Consultation paper, para 3.2.

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

[9] Our first report, p 8.

[10] Sapere report, p 2.

> …that we believe are needed to deliver a future state where the level and pace of investment in public EV chargers stands the best chance of delivering public EV charging infrastructure that would support, and not constrain, growth in the EV fleet.

The objective disclosed by Sapere's report is the achievement of a particular outcome, rather than being grounded in the economic concepts of efficiency and competition that are embedded in the Authority's statutory objective. This is also reflected in other submissions made to the Authority.[11]

Our first report, on the other hand, proceeded on the understanding that the Authority can support electrification and broader public policy objectives, such as those set out in the government's electricity policy statement, only within the bounds of its statutory objective, which is to promote economic efficiency and competition.

Generally, the promotion of competition and economic efficiency in the electricity industry would be expected to facilitate the efficient development of EV charging infrastructure. Recognition of particular challenges for the development of EV charging infrastructure can and should be used to inform the consideration of policy proposals in the electricity industry. However, it does not follow that installing the accelerated delivery of public EV charging infrastructure as a further objective would promote competition and economic efficiency in the electricity industry.

2.3 Role of equity considerations

The concept of 'equity' has no unique meaning in economics but is commonly understood to have a meaning similar to that of fairness or equality. In contrast, 'competition' and 'efficiency', concepts that are invoked by the Authority's statutory objective, are well understood in economics – and the Authority has previously drawn on economic considerations to inform its understanding of its statutory objective.[12]

The Authority's consultation paper, and each economic report submitted to the consultation, brings a distinct perspective in relation to the role of equity consideration:

- we explain in our first report that the Authority appears to have regard to equity considerations (although it typically uses language referring to 'economic efficiency' when describing these concerns) and suggest that those equity considerations do not appear to align with the Authority's statutory objective;[13]
- Incenta also recognises that the Authority has regard to equity considerations, but indicates approval for this approach, as we explain in further detail below;
- Sapere, while referencing policy objectives such as growth in the EV fleet, does not discuss the role of equity considerations compared to efficiency in its set of principles and outcomes that it contends that the Authority should work towards;
- Frontier was asked to take into account that the Authority's problem definition is not solely about efficiency[14] but it was not asked to critique the Authority's objectives; and
- Axiom does not address issues of equity since its report is directed at the Authority's problem definition.

Incenta's consideration of the Authority's proposal highlights approvingly the prominence that the Authority gives to equity issues in its use of the 'balance point':[15]

[11] For example, the Energy, Efficiency & Conservation Authority cites 'the importance of ongoing electrification trends, population growth and general economic development' to pricing settings. Similarly, the BusinessNZ Energy Council supports the Authority's proposals on the basis that they will 'facilitate timely electrification as decarbonise, for example by accelerating the deployment of public electric vehicle (EV) chargers…' See: Energy Efficiency & Conservation Authority, *EECA submission on EA consultation papers*, 20 December 2024, p 1; and BusinessNZ Energy Council, *Distribution connection pricing proposed code & network connections project – stage one*, 20 December 2024, pp 2-3.

[12] Electricity Authority, *Interpretation of the Authority's statutory objective*, 14 February 2011.

[13] See our first report, pp 3 and 24-25.

[14] Frontier report, p 9.

[15] Incenta report, para 18.

> Implicit in the Authority's analysis is that an equitable outcome between successive vintages of customers would be one where each customer contributes the incremental cost it causes and then makes a similar contribution to the common costs of the network. Whilst the concept of equity is much broader than economic efficiency, and so a number of different perspectives may exist as to what is equitable outcome in relation to connection charges, we would expect the Authority's analysis to be broadly acceptable. Moreover, achieving outcomes that are broadly equitable between vintages of customers is typically seen as a key design principle of utility pricing – and connection prices in particular – and so the Authority should be given credit for the prominence it has provided to equity issues.

We agree with Incenta that the Authority's reliance on the 'balance point' reflects a focus on equity, rather than efficiency. However, the Authority has specifically described the balance point as the upper bound of its presumed efficient range of connection prices,[16] rather than on the basis of the equity considerations that Incenta discusses.

We disagree with Incenta's conclusion that a focus on equity is appropriate, given that the Authority's statutory objective refers primarily to competition and economic efficiency, and does not specifically raise issues of fairness or equality.

Incenta cites the Authority's additional statutory objective as '*permitting the Authority to consider whether measures generate equitable outcomes in relation to these groups of customers*'.[17] This appears to be a very broad reading of the Authority's additional objective. It is unclear to us that the additional objective has such an expansive role. In particular, the additional objective specifically relates to the dealings of industry participants with domestic consumers and small business customers. Since the principal role of connection pricing is to affect how a distributor recovers the revenue allowance approved by the Commerce Commission, the issues of equity that arise tend to be around equity between groups of customers, rather than to dealings between industry participants and customers.

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

[17] Incenta report, footnote 9.

3. Authority's problem definition

In this section we review commentary in submissions relating to the problems or 'inefficiencies' by reference to which the Authority seeks to justify regulatory intervention.

We note in our first report that 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.[18]

In our first report we observed a significant disconnect between the Authority's:[19]

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

3.1 Summary of 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:[20]

- a trend towards higher connection charges, influenced by an incentive to increase connection charges in order to reduce net capital expenditure under the Commerce Commission's incremental rolling incentive scheme (IRIS);[21]
- inefficiently low connection charges, which can risk cross-subsidies from existing users to new users if connection charges that are less than the incremental cost of connection;
- 'excessively high' levels of inconsistency in the approaches taken by different distribution businesses, leading to:[22]
  - barriers to staff mobility between distributors; and
  - increases costs for access seekers, their advisors and suppliers associated with 'learning, uncertainty and unpredictability';
- poor co-ordination, including through 'position-in-queue' dynamics and 'piecemeal network development';[23]
- wealth transfers due to connection pricing methodology changes that lead to higher connecting prices without offsetting reductions in ongoing charges for newcomers; and

[18] Our first report, p 7.

[19] Our first report, p 13.

[20] Consultation paper, para 5.1-5.4.

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

[22] Consultation paper, para 5.4(a).

[23] Consultation paper, para 5.4(a) and 5.4(d)(i).

- difficulty resolving disputes.

3.2 Lack of empirical evidence

We explain in our first report that the Authority's problem definition is based on 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.[24]

The economic reports submitted to the Authority similarly highlight that there is a lack of empirical evidence for the 'inefficiencies' that the Authority identifies. For example, Axiom identifies a lack of empirical evidence for inefficiencies associated with the current arrangements.[25] Incenta and Frontier also identify areas where the Authority has provided insufficient empirical evidence to justify its proposed interventions.[26]

Incenta notes that the Authority has provided no evidence of movements in connection charges relative to a measure of efficiency such as the neutral point.[27] Frontier, likewise, comments that:[28]

> …no evidence has been presented that demonstrates that capital contributions are indeed set above efficient costs, it has merely asserted that this is the case.

We agree with Incenta and Frontier that the Authority's analysis of trends in connection charges as a proportion of connection and system growth capital expenditure per se is not sufficient to draw conclusions as to the efficiency of connection charges.

The preponderance of economic advice is that the evidence provided by the Authority of different methodologies and connection charge outcomes between distributors does not support a conclusion that there are 'inefficiencies' in the market. For example, Axiom explains that the Authority has not made the case that differences in methodologies between distributors is a genuine problem.[29] Incenta observes that there are many reasons that may explain variance or inconsistency in incremental costs – and therefore in connection charges – between distributors.[30] We concur with these observations.

Sapere suggests that there is no analysis demonstrating that low connection charges are inefficient.[31] We agree that the Authority has not presented any empirical evidence of inefficient connections proceeding. However, at a conceptual level, connection charges that are lower than incremental cost may give rise to inefficient outcomes, in which the cost of connection exceeds the economic value that it creates.

3.3 Incentive concerns

A view widely expressed in the submissions that we have reviewed is that any efficiency problems introduced by the design of the Commerce Commission's regulatory framework would best be addressed by amendments to that framework – including potentially by collaborative effort between the Commission and the Authority.

For example, Frontier suggests that:[32]

[24] Our first report, section 3.2.

[25] Axiom report, pp 12-13, 18.

[26] Frontier report, p 26; and Incenta report, paras 22-25.

[27] Incenta report, paras 22-23.

[28] Frontier report, p 26.

[29] Axiom report, p 22.

[30] Incenta report, para 23.a.i.

[31] Sapere report, p 16.

[32] Frontier report, p 27.

> [e]ven if existing incentives encourage distributors to set inefficient connection charges, the appropriate response to this is refining either the incentive regime or providing increased guidance on the approach to connection charging.

Axiom lends support to this view, stating that:[33]

> [i]f 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.

Likewise, Incenta expresses a view that:[34]

> …whilst we agree that it is desirable for the EDBs to have a financial incentive to process connection requests and connect customers in a timely manner, a better mechanism to achieve this is to refine the DPP regime.

Incenta goes on to explain that the Commerce Commission appears likely to consider further adjustments to capital expenditure allowances for levels of connection activity for the purposes of the IRIS.[35] Incenta's comments at paragraph 21 of its report highlight that the Commission has considered, and may consider in future, proposals to amend the incentive regime to address the same incentive issue that the Authority sets out in its problem definition for this consultation. These observations cast further doubt on whether the Authority should proceed with any policy action responding to issues raised with the Commission's regulatory framework.

[33] Axiom report, p 7.

[34] Incenta report, para 21.

[35] Incenta report, paras 21-22.

4. Economic efficiency

In this section, we review the economic efficiency arguments that are raised in submissions to the Authority. In undertaking this review:

- we first consider the economic efficiency comments relating to the key elements of the Authority's full reform proposal – the neutral point and the balance point – in sections 4.1 and 4.2;
- we then discuss the numerous efficiency concerns that have been raised in relation to reliance limits, in section 4.3; and
- we discuss efficiency considerations pertaining to standalone costs (section 4.4), deep vs shallow connection pricing and capacity charges (section 4.5), and pioneer schemes (section 4.6).

4.1 Efficiency of the 'neutral point'

The Authority's full reform proposal involves the imposition of constraints on connection charges so that these lie between:

- at the lower bound, the 'neutral point', where the combination of connection charges and ongoing distribution charges is equal to the incremental cost of providing the connection; and
- at the upper bound, the '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'.

We observed in our first report that the neutral point raises challenges for both efficiency and competition. In particular, pricing connection services at the neutral point reflects pricing below the incremental cost of connection services, which in turn:[36]

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

In this section, we respond to points raised in submissions to the Authority concerning the neutral point and efficiency. In section 5, below, we respond to points that are related to the neutral point and that concern competition for connection services.

4.1.1 Efficiency of incremental cost pricing

Generally, pricing at incremental cost is considered to be economically efficient.[37] Incenta also endorses a principled view that charges at incremental cost are allocatively efficient:[38]

> Allocative efficiency is achieved when the service is provided (but only provided) where the benefit to the customer exceeds the incremental cost of supply. Having prices that are not lower than incremental cost is one means of generating comfort that the service is unlikely to be provided where it would be inefficient to do so.

However, because distribution charges are usually substantially higher than the incremental cost of distribution services, pricing at the neutral point may allow connection charges to fall substantially below the incremental cost of connection services.

[36] Our first report, section 4.2.

[37] Our first report, section 2.1.1.

[38] Incenta report, footnote 8.

This situation can give rise to risk transfers from customers to connection applicants. Axiom makes a similar point when it observes that the Authority's proposal could lead to prices that are below the incremental cost of connection if customers disconnect.[39] These risk transfers are likely to give rise to inefficient outcomes because they may promote connections that would not proceed if they were charged the upfront cost of connection.

This analysis appears to be consistent with Frontier's, which explains that prices based on incremental cost are efficient, and that it is more efficient to recover upfront capital costs in upfront charges.[40]

Similarly, Axiom explains that in the absence of financial guarantees, only up-front capital contributions can be effective at recovering incremental costs of a connection. In contrast:[41]

> … it would be neither efficient nor equitable for 'stranding' costs to be smeared across customers who have not caused them to be incurred.

We agree with Axiom's explanation. In our earlier report, we explain 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:[42]

- 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 also explain how the Australian regulatory system addresses the prospect for risk transfers when applying the conceptually similar 'cost-revenue test'.[43]

4.1.2 Assumptions that underpin the efficiency of the neutral point

The concerns that we raise about the neutral point, which reflects pricing below the incremental cost of the connection service, suggest to us that the neutral point:

- will not promote competition, and will likely harm competition in circumstances in which contestable provision of the services might otherwise have been viable – which we discuss further in section 5 below; and
- may not facilitate greater efficiency and may harm efficiency to the extent that the risk transfers involved with pricing at this level are addressed.

Despite general agreement about the economic principles that underpin the importance of incremental cost to economic efficiency, Frontier and Incenta arrive at more positive findings than ours about the efficiency properties of the Authority's neutral point. We set out below our understanding of the key differences in economic analysis that leads to these differences.

Incenta begins its analysis of the efficiency of the neutral point from the premise that:[44]

[39] Axiom report, p 16.

[40] Frontier report, p 13.

[41] Axiom report, p 17.

[42] Our first report, section 4.2.2.

[43] Our first report, section 6.4.

[44] Incenta report, para 16(a).

> …when analysing the effect on allocative efficiency, the upfront charge for connecting to the network needs to be considered in combination with the (expected) ongoing network charges for the use of the network once connected.

We agree with Incenta that if the connection service and the distribution service are considered together as a single service, then the incremental cost of these combined services is the Authority's neutral point. However, joint provision of these services should not automatically be assumed because, with the exception of elements of the connection service that involve the augmentation of system capacity:

- the connection service and the distribution services are clearly distinguishable,[45] as are their incremental costs; and
- there is nascent competition for the provision of connection services and the potential for this competition to expand whereas such competition is not feasible for the provision of distribution services.

Similar to Incenta, Frontier finds that:[46]

> … a connection price that signals the net incremental cost of connection – which is the Authority's neutral point – can be expected to encourage the economically efficient volume of network connections.

The process of reasoning from which Frontier reaches this conclusion is unclear to us, given the economic principles that it sets out about the role of incremental cost, which we summarise above. Frontier does not explain how *both* incremental cost *and* net incremental cost would be similarly efficient, or the assumptions that it has made to reach this finding.

In our first report, we consider in detail the distinction between incremental cost and net incremental cost (or the neutral point) as it relates to the connection service by itself (as opposed to being the *combined* incremental cost of the connection *and* distribution services) and the implications of this distinction for competition and economic efficiency.[47] By contrast, neither Incenta's nor Frontier's reports appear to have given much consideration to this distinction or its consequences for economic efficiency.

4.1.3 Implications for the range of efficient prices

Powerco argues that:[48]

> Setting connection charges at the lower end of the efficient range is better than setting them too high in a period of growth. Customers will get the wider benefits of timely electrification as well as lower costs over time by sharing the costs of the network across more people.

Consistent with our observations above and in our first report that the neutral point raises challenges for efficiency and competition, we disagree with Powerco's statement to the extent that is referring to the Authority's proposed range of 'efficient' prices (ie, between the neutral point and the balance point). There are circumstances in which pricing at the neutral point will not be efficient and may harm competition, and the balance point is not conceptually linked to economic efficiency.

Further, our opinion is that Powerco's argument is not applicable to connection services that are (or may be) contestable. For these services, there is unlikely to be a wide 'range' of efficient prices – the efficient connection charge is likely to be at or near incremental cost, since there could be only very limited recovery of common costs from these customers due to the common costs of connection services likely being much

[45] We understand that in some cases, the connection charge and the distribution charge may be paid by different parties, eg, a property developer and an end customer.

[46] Frontier report, p 16.

[47] Our first report, section 4.2.

[48] Powerco, *Powerco submission on distribution connection pricing consultation*, December 2024, p 4.

less than those of the distribution service. This contrasts with Powerco's suggestion that *'just like sunk cost network pricing, there is a wide range of efficient connection prices'*.[49]

4.2 The 'balance point'

In our report, we observed that the balance point does not reflect economic efficiency considerations. Although the Authority suggests that the balance point plays a role in informing the efficiency of connection charges, there is no 'bright line' that determines the balance point as the logical boundary for such considerations.

Our view about the role of the balance point is shared by Frontier, which notes that there is no role for the balance point in efficiency considerations:[50]

> It is not clear to us that there is an economic rationale for setting connection charges at a level that reflects the average contribution of existing users. Such an approach would only align with the incremental cost for a specific connection by accident.

We explain above that Incenta's commentary notes approvingly the prominence the Authority gives to equity considerations. We do not consider that this focus promotes the competition and economic efficiency elements of the Authority's statutory objective.

However, to the extent that Incenta's commentary about equity relates to the balance point,[51] we agree that this concept draws primarily from equity considerations, rather than economic efficiency. In contrast, the Authority considers that prices between the neutral point and the balance point are likely to be 'most efficient'.

In our first report we 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.

4.3 Reliance limits

The Authority's fast track proposals impose a cap on the extent to which distributions can fund connections and system growth capital expenditures from connection charges, known as a 'reliance limit'. 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'.[52]

In our report, we explained that reliance limits are not directed at the key elements of economically efficient pricing, because it does not place a lower bound on connection charges and because its upper bound is based on considerations of equity.[53]

There was general agreement in the submissions that we reviewed about the Authority's reliance limits. Specifically:[54]

[49] Powerco, *Powerco submission on distribution connection pricing consultation*, December 2024, p 14.

[50] Frontier report, p 19.

[51] See Incenta report, para 18.

[52] Consultation paper, p 5.

[53] Our first report, p 27.

[54] Sapere does not comment on the economic merits of the reliance limits but argues that they do not require distributors to change their approaches to connection pricing. See: Sapere report, p 18.

- Frontier states that the proposal to introduce reliance limits 'is not supported by the evidence provided and is not aligned with sound economic principles';[55]
- Incenta explains that 'this measured reliance is a poor proxy for whether the efficiency and/or equity of connection prices have changed';[56] and
- Axiom says that '[t]here is no basis in economic theory to believe that using [the proposed approach to calculate reliance limits] will produce an efficient benchmark. The primary merit of these numbers seems to be their mere existence'.[57]

We agree with these comments and make the following additional observations.

First, to the extent that connection charges are creating efficiency issues – through the means described by Incenta at paragraph 19 of its report – reliance limits set in aggregate do not appear capable of solving these issues. The question of efficient pricing is one that relates to each connection service individually – ie, each interaction between a distributor and a customer. Therefore, the imposition of a constraint on aggregate connection revenues will not necessarily constrain distributors to price connections at efficient levels.

Second, the recovery of connection costs via upfront connection charges might ordinarily be considered efficient. Axiom explains this point in further detail in section 3.1 of its report.[58] Frontier also observe that:[59]

> [i]t is likely to be more economically efficient for customers to make an upfront payment related to the incremental costs of connecting to the network rather than for those costs to be recovered through ongoing charges.

Therefore, a limit of 47 per cent on capital contributions does not appear to follow from any economic reasoning. Instead, an efficient level of capital contributions will depend on the incremental costs that each distributor needs to incur to facilitate connections on its network.

Third, we understand that the measurement of connection and system growth capital expenditure may not be on a like-for-like basis across distributors, since it does not include 'vested assets' that have been rolled into distributors' asset bases at no cost.[60] This raises questions about the validity of the Authority's metrics for reliance.

4.4 The role of the 'bypass point' and standalone costs

The Authority defines 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.[61] The standalone cost refers to the cost of establishing a dedicated connection to the transmission grid or implementing a self-supply solution.[62]

Sapere expresses concern that the standalone cost is higher than the efficient upper bound for connection pricing if it includes all costs incurred by a monopoly infrastructure provider.[63] Sapere appears to suggest that distributors could set inefficiently high prices that are still below standalone cost.[64]

[55] Frontier report, p 26.

[56] Incenta report, para 9.

[57] Axiom report, p 20.

[58] Axiom report, pp 9-10.

[59] Frontier report, p 13.

[60] Incenta report, para 23(b); and Frontier report, p 32.

[61] Consultation paper, para 7.62.

[62] Our first report, p 16.

[63] Sapere report, p 17.

[64] Sapere report, pp 17 and 22-23.

We agree with the Authority that standalone cost is the upper bound for a 'subsidy free' connection price[65] – and any price above the standalone cost will always be inefficient. However, this upper bound does not define the range of efficient prices for each customer because the opportunity cost of connection may fall below standalone cost for some customers. We agree with Sapere that prices below standalone cost could still be inefficient if they prevent a customer from connecting who would otherwise be willing to pay at least the incremental cost of their connection.

The Authority also appears to agree with this point. Although we explain in our first report and in section 4.2 that the balance point has no basis in the concept of efficiency, the Authority does appear to consider that the bypass point, or standalone cost, is not the appropriate upper bound for efficient connection pricing in all cases.

Given that the Authority does not appear likely to rely on the bypass point to a significant degree in its proposals for connecting pricing, we do not understand Sapere's position that:[66]

> …the most urgent thing the Authority should do is to accept that its definition of standalone cost in its proposal paper is incorrect for regulated pricing purposes'.

Sapere appears to suggest including an alternative measure of standalone cost in the reconciliation requirements.[67] Given that the bypass point is not likely to be relevant for many customers, a requirement to calculate standalone cost for each customer may risk imposing costs that are disproportionate as compared to their potential to inform efficient connection prices.

Further, to the extent there is contestable provision of connection services, customers may be able to incur the standalone costs themselves. In such cases, there is no benefit in the distributor providing a calculation of standalone cost that could otherwise be sought in a competitive market for the provision of connection assets.

Although we do not consider it necessary to devise a mechanism for calculating standalone cost, we do not see close parallels to economic thinking for the setting of standalone cost for railways in the United States, as raised by Sapere.[68] In those circumstances, we understand that the role of standalone cost is to act as a constraint on the recovery of the costs of monopoly assets. In the New Zealand electricity distribution connection price context:

- charges for connection services are levied on the construction of new connection assets, rather than by reference to historical costs, and therefore hypothetical considerations about the calculation of standalone cost have little relevance; and
- the role of standalone cost would be relatively limited even under the Authority's proposals, with the principal constraint on the recovery of the costs of monopoly assets determined by the Commerce Commission through its regulatory framework.

4.5 Deep and shallow connection pricing

The distinction between 'deep' and 'shallow' connection pricing typically revolves around the extent to which customers pay only for assets that extend the network and which are dedicated to their use ('shallow connection pricing') or where they also contribute to the costs of expanding the shared network to facilitate their connection ('deep connection pricing').

[65] Consultation paper, para 7.63 (c).

[66] Sapere report, p 22.

[67] Sapere report, p 23.

[68] Sapere report, p 17.

4.5.1 Efficiency of deep and shallow connection prices

Sapere argues a shallow connection pricing policy would give rise to more efficient connection charges overall:[69]

> Allowing for connection enhancement costs to only include network extensions and customer requested enhancements with all deep connection costs recovered through network capacity charges would lead to more efficient prices, far greater consistency, and more accurate pricing than the proposed connection enhancement cost in the fast track proposal.

Sapere does not explore the disadvantages of shallow connection pricing, such as the potential efficiency harms arising from mismatches between charges and costs.

In our opinion, allocative efficiency is likely to be promoted by allowing distributors to set deep connection charges. However, there are equity and public policy-based arguments for only setting shallow connection prices, as suggested by Sapere, in some contexts.

Economic efficiency is promoted when new connections occur if and only if the value derived from the connection is greater than the costs incurred to facilitate the connection. It follows that economic efficiency is promoted by setting prices that reflect the costs that will be incurred to facilitate connections. Deep connection pricing enables distributors to signal the costs of connections to customers by including in connection charges all of the costs that are caused by the connection.

These efficiency arguments must be weighed up against other considerations. For example, Ofgem, in determining that more shallow connection prices were preferable in the United Kingdom, reasoned that socialising connection costs was strategically the best option to achieve decarbonisation objectives in the United Kingdom.[70] In Ofgem's view, deep connection pricing could create a barrier to achieving the volume of connections necessary for decarbonisation.

This reflects a potential trade-off between supporting decarbonisation and promoting allocative efficiency in some contexts. Ofgem explains that:[71]

> Our changes to the connection charging boundary will reduce the price signal sent to customers through connection charges, about the cost of connecting in certain locations. Our impact assessment suggests that this change could lead to less efficient decision-making by some customers for some locations. We continue to consider that these efficiency losses are outweighed by the expected benefits, such as bringing forward connections of … [low carbon technologies] … and encouraging … [distribution network operators] … to invest strategically in the wider interest of all consumers. However, we acknowledge that in the absence of DUoS reform reintroducing some locational signals, concerns remain around the risk of consumers funding inefficient system development. This is particularly pertinent for high-cost demand connections where there was lower demonstrable wider consumer benefit to the triggered reinforcement.

We note that Ofgem's statutory objective appears to be broader than the Authority's,[72] and that its guiding principles (which were informed by and consistent with its statutory objective) for the relevant connection pricing reform included supporting decarbonisation.[73]

More generally, there is no economic or regulatory consensus in favour of shallow or deep connection pricing in all circumstances. Jurisdictions around the world approach these matters differently. A recent

[69] Sapere report, p 18.

[70] Ofgem, *Access and forward-looking charges significant Code review: final decision*, May 2022, p 31.

[71] Ofgem, *Access and forward-looking charges significant Code review: final decision*, May 2022, pp 41-42.

[72] Ofgem's website, available at: https://www.ofgem.gov.uk/publications/our-powers-and-duties, accessed 23 January 2025.

[73] Ofgem, *Access and forward-looking charges significant Code review*, Final decision, May 2022, pp 20-21.

survey of the approaches taken by European Union regulators to distribution connection charges found that, of the 28 member states:[74]

- eleven applied only shallow connection charges;
- six applied only deep connection charges; and
- eleven applied both forms of connection charges.

The survey acknowledges a potential trade-off between the greater efficiency of deep connection charges, and greater simplicity, transparency and certainty of shallow connection prices:[75]

> On the one hand, the need for locational signals and increasing cost-reflectivity are amongst the most frequently reported reasons for the application of deep connection charges. On the other hand, countries which apply shallow connection charges appear to value its simplicity, more certainty and visibility for the network users.

The survey also notes that in those countries that apply both deep and shallow charges, the need for cost-reflectivity and deeper connection charges is often greater in relation to higher voltage levels for which connection costs are higher and more varied across network users.[76]

Given the trade-offs between deep and shallow connection pricing, there does not seem to be a clear principled or empirical basis for Sapere's assertion that shallow connection pricing would lead to 'more efficient prices', and 'more accurate pricing'. There are likely to be many circumstances in which deep connection pricing will be preferable, particularly in circumstances in which the promotion of economic efficiency is a dominant consideration.

4.5.2 Double counting of capacity charges

The Authority's fast-track proposals allow distributors to choose the extent to which they retain deep connection charges, by providing for posted capacity charges.

Sapere state that the inclusion of capacity charges in the connection scheme would *'explicitly allow double costing'* because:[77]

> …a new connection could pay for network upgrades though the network enhancement costs and then also pay network capacity charges, which include existing and new capacity.

This is not consistent with our understanding of the Authority's proposals.

We understand that connection charges for capacity (whether posted prices or based on actual costs) would be deemed a capital contribution that is sought from a customer. Capital contributions are defined in the Commerce Commission's Input Methodologies as:[78]

> …money or the monetary value of other consideration that is charged to or received from consumers or other parties for the purposes of asset construction, acquisition or enhancement

[74] ACER, *Report on electricity transmission and distribution tariff methodologies of Europe*, January 2023, p 43.

[75] ACER, *Report on electricity transmission and distribution tariff methodologies of Europe*, January 2023, p 43.

[76] ACER, *Report on electricity transmission and distribution tariff methodologies of Europe*, January 2023, p 43.

[77] Sapere report, p 18.

[78] Commerce Commission, *Electricity distribution services input methodologies determination 2012*, 23 April 2024, s 1.1.4(2), definition of 'capital contributions'. We note that the definition of capital contributions explicitly excludes such payments agreed in 'large connection contracts' for generation or load capacity of at least 5 MW.

Capital contributions are not included either within the value of commissioned assets or within the forecast value of commissioned assets, which together determine regulatory asset base.[79]

It follows that the inclusion of capacity charges in the connection scheme would not give rise to the costs of assets being recovered twice. Costs that are recovered as capital contributions would ultimately not be included in the regulated asset base, and therefore a return on and of these assets would not be recovered in the annual allowable revenue determined by the Commerce Commission or through distribution prices.

Sapere references some 'pragmatic advantages' of posted pricing (albeit while advocating for capacity costs to be recovered through distribution pricing), including lower administration, search and transaction costs, greater clarity and transparency and greater consistency.[80]

The Authority's proposal to allow for distributors to adopt deep connection pricing based on posted rates appears to offer one potential approach for:

- balancing the efficiency benefits of deep connection pricing that we discuss above;
- retaining some elements of the certainty and simplicity of shallow connection prices; and
- providing for reliance on actual costs for large projects or where these costs significantly differ from the posted rates.

The Authority's approach of allowing for posted capacity charges (ie, a form of deep connection pricing), but providing for reliance on actual costs for large projects or where these costs significantly differ from the posted rates, appears to be a pragmatic approach to capture the potential benefits of posted rates while providing a back stop against their potential harms.

In relation to Sapere's comments regarding distribution pricing based on historical data and balancing 'average and marginal network costs with a reasonable allocation of common costs',[81] we do not consider that this degree of specificity in relation to distribution prices is necessary to address concerns that the Authority is examining about connection charges.

4.5.3 Relevance of the Australian approaches to connection charges

Sapere refers to 'the Australian scheme' and 'the Australian method' as applying an approach in which all system capacity costs are recovered in distribution prices, rather than through deep connection charges.[82] This appears to imply a singular Australian approach to connection pricing, where no such approach exists.[83] We explain in our first report that there are a range of connection pricing approaches taken in 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;
- 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.

[79] Commerce Commission, *Electricity distribution services input methodologies determination 2012*, 23 April 2024, ss 2.2.11(1)(h) and 5.3.11(1)(h).

[80] Sapere report, pp 18-19.

[81] Sapere report, p 18.

[82] Sapere report, p 18.

[83] Sapere report, p 18.

The National Electricity Rules (NER) do not allow certain categories of small customers, being basic connections or those below a threshold set by distributors' connection policies, to be required to make a capital contribution towards the cost of an augmentation.[84] However, distributors have discretion to be able to levy deep connection charges in a range of other scenarios. Most distributors elect to employ this discretion, at least to some extent.

Generally, where services are classified as alternative control or contestable, connecting customers pay connection costs directly as a connection charge or capital contribution. Where services are classified as standard control, the cost-revenue test is applied and the connection costs are recovered through a combination of distribution charges and a capital contribution capturing shared network costs.

It follows from these observations that, contrary to Sapere's proposals, there is no singular Australian approach that could, or should, be immediately adopted by the Authority for New Zealand.

4.6 Pioneer schemes

The Authority has proposed the introduction of pioneer schemes that would address 'first mover disadvantage', whereby the first party to connect to a distribution network may fund extension assets that are later used by subsequent access seekers.

Many submissions to the Authority express concern that a requirement to implement pioneer schemes would be costly for distributors to implement. These concerns have been levied from a range of perspectives, including:

- from economic experts, with Incenta and Frontier both explaining that pioneer schemes are not costless to operate;[85]
- from distributors, with Aurora Energy stating that it had withdrawn its pioneer scheme because it was inefficient to administer and that it has received no feedback that this had raised issues for its customers; and
- from charge point operators, with BP explaining that pioneer schemes would not assist it to overcome first mover disadvantage since it will continue to assess business risks on the worst case scenario in which no subsequent access seekers connect to share its costs.[86]

In our first report, we put forward a framework suggesting that any efficiency gains delivered by pioneer schemes need to be weighed up against the costs for distributors in implementing those schemes. The balance of evidence that we have reviewed in submissions appears to suggest that those costs are likely to be substantial, and that there is a possibility they will not be proportionate to the unmeasured efficiency benefits that pioneer schemes seek to address.

[84] NER, s 5A.E.1(b).

[85] Incenta report, para 34; and Frontier report, p 31.

[86] BP, *Distribution connection pricing proposed code & network connections project – stage one*, undated, p 3.

5. Competition

In this section, we respond to contentions about competition that were raised in submissions to the Authority.

In our first report, we found that pricing at the neutral point would reflect prices below the incremental cost of providing the connection services and that this would deter competition to provide those services. We explained that prices at this level could not be achieved in a competitive market for connection services and could only be sustained by a distributor that could cross-subsidise such prices with higher distribution charges.[87]

Frontier gives some consideration to the competition implications of the Authority's proposed fast track reforms. In particular, in respect of the proposed reliance limits, Frontier observes that:[88]

> In theory, reliance limits may reduce competition if the limit binds, resulting in distributors socialising some or all of the incremental connection costs through the RAB. In this scenario, the Authority's proposal would prevent the distributor from charging the connection applicant the actual incremental cost of their connection. Third parties would be unable to match the price charged by the distributor due to the absence of a RAB through which to recover any residual connection costs.

Frontier goes on to observe that these issues may arise already to the extent that distributors are not prevented from setting connection charges below incremental costs, but that:[89]

> The Authority's proposal, increases the prospects of competition concerns, however, where a distributor is pricing efficiently.

We agree with Frontier's assessment of the competition implications of connection charges that are below incremental costs – although Frontier does not apply this competition analysis to its review of the Authority's proposed neutral point.

The application of Frontier's logic to pricing at the neutral point leads to the conclusion we reached in our first report, ie, that pricing below incremental cost (at the neutral point) would deter competition to provide connection services. Where the price is below the incremental cost of connection, 'third parties would be unable to match the price charged by the distributor'.[90]

This situation can give rise to harm to competition in the market to provide connection services, because firms that wish to compete against distributors in these markets may be unable to do so when prices are set below incremental cost.

We note Frontier's observation that negative effects on competition and economic efficiency arising from the Authority's proposal allowing connection prices below incremental cost would only arise where such prices would not otherwise result from the status quo.[91] We agree with this observation. However, our critique of the Authority's proposed floor for connection charges based on the neutral point stands on its own merits. Given the preponderance of distributors with very low connection charges, the imposition of a floor for connection charges that better promotes competition and economic efficiency would materially improve the Authority's proposal.

[87] Our first report, section 4.2.3.

[88] Frontier report, p 23.

[89] Frontier report, p 24.

[90] Frontier report, p 23.

[91] Frontier report, p 24.

Incenta and Axiom do not appear to consider (or have been asked to consider) the competition implications of the Authority's proposed reforms to connection pricing.

In respect of Incenta's considerations, we note in section 4.1.2 above that Incenta explicitly assumes that:[92]

> …the upfront charge for connecting to the network needs to be considered in combination with the (expected) ongoing network charges for the use of the network once connected.

In our view, this premise amounts to an assumption that the party that recovers the ongoing network charges (ie, the distributor) would also be the party that determines the upfront connection charge. A corollary of this assumption is that there cannot be competition for connection services. We understand this to be the reason that Incenta has not considered the competition implications of the Authority's proposals.

We explain in section 4.1.2 above that the joint provision of these services (or joint responsibility for ongoing network charges and upfront connection charges) should not automatically be assumed because, with the exception of elements of the connection service that involve the augmentation of system capacity:

- the connection service and the distribution services are clearly distinguishable, as are their incremental costs; and
- there is nascent competition for the provision of connection services and the potential for this competition to expand whereas such competition is not feasible for the provision of distribution services.

We note that in Australia, the incremental cost revenue test – which aligns with the Authority's neutral point, is applied only in certain circumstances and not where there is the prospect of competition in connection services.[93]

Following our review of submissions, our conclusion in relation to competition remains in line with our first report, ie, that the neutral point is not an appropriate lower bound for connection prices where the objective is to promote competition for the provision of connection services.

[92] Incenta report, para 16 (a).

[93] Our first report, p 30.

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