

Achieving efficient investment in public EV charging infrastructure

Relieving the limitations in the current network access and pricing regime

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Glossary

Abbreviation	Stands for
CPO	Charge Point Operator
EDB	Electricity Distribution Business
EV	Electric Vehicle
FMD	First mover disadvantage
LV	Low Voltage

1 Executive summary

A number of private investors (Charge Point Operators, or CPOs) are deploying public EV chargers in New Zealand. They can see that achieving New Zealand's legislated decarbonisation goals relies heavily on electrification of the vehicle fleet.

Public EV charging infrastructure is an important factor in the pace at which the fleet can be electrified, and there is a socially 'optimal' level of EV chargers that efficiently enables consumers to make EV purchasing decisions. Whilst this paper does not speculate on the optimal level of chargers¹, we show that there are inefficiently high 'costs of doing business'², relating to electricity network access and pricing, that will inhibit New Zealand achieving it. We suspect that these transaction costs have arisen because EDB's connection processes have adapted over the years to the 'typical' connection customer. The CPO business model is both new, and significantly different, to that of a 'typical' connection.

Delays in addressing these costs means New Zealand falls further behind the optimal level of chargers, as EVs are being continuously purchased by consumers. This logic applies equally to the achievement of the Government's target of 10,000 EV chargers by 2030³.

Our approach is relevant to all connections, but recognises the unique aspect of CPOs

It is important to recognise that, in most cases, these transaction costs are not unique to CPOs. All demand-side connections (of a similar size to a public EV charger) will experience the same network connection and pricing process and outcomes for any given Electricity Distribution Business (EDB). Improvements in the connection access and pricing regime, as outlined in this report, will therefore benefit a much broader group of customers than just CPOs.

However, there are some factors that mean CPOs experience a higher level of transaction cost than almost any other conceivable connecting customer. A key factor⁴ is that CPOs are typically looking to connect in a number of different locations around the country. As a result, CPOs face an additional, and potentially significant transaction cost: that different EDBs typically have different access and pricing processes and arrangements. CPOs must be able to handle multiple processes, often at the same time.

The outcomes required for an efficient connection access and pricing regime - especially for CPOs:

1. A clear and predictable commercial framework for access which enables CPOs to:
 - a) efficiently evaluate both price and connection capacity for prospective locations and deploy investment accordingly;
 - b) have confidence that connection prices (capital contributions and use of system charges) are cost-reflective, do not unduly deter efficient investment in charging infrastructure, and have been developed via a robust and transparent methodology.
2. The commercial framework above can be secured by reasonable and balanced contracting terms
3. National consistency of these access and pricing arrangements, allowing CPOs to deliver an efficient national public charging network across multiple EDBs
4. An access regime that enables the greatest degree of competition for deployment of EV charging networks
5. The performance of the overall connection access and pricing regime to be overseen, monitored and evaluated by a regulatory or policy agency

¹ As cited in Drive Electric State of the Nation <https://driveelectric.org.nz/state-of-the-nation-report/>, New Zealand has a very low level of public EV chargers today, by comparison with other international jurisdictions, page 42.

² Which we generally refer to as 'transaction costs' including the costs (time, resources, funds) associated with dealing with the evaluation of, and negotiation for, network access. This is a separate issue from the question of whether the magnitude of actual costs levied by EDBs meet the Authority's distribution pricing principles.

³ See Ministry for the Environment 2024, Emissions Reduction Plan Key policies proposed for ERP2, Target 10,000 electric vehicle (EV) chargers by 2030 [here](#)

⁴ There are a number of other differentiating factors, as explained in this report.

Collectively, these outcomes (and the deliverables that sit under each of them) would achieve a future state where the level and pace of CPO investment stands the best chance of delivering public EV charging infrastructure that would support, and not constrain, growth in the EV fleet.

The time it takes to deliver these outcomes will be a key driver of the speed at which any desired level of EV chargers is achieved.

Progress towards these outcomes is underway, but needs additional measures

Our review of the current connection arrangements, and the various workstreams underway today of relevance to CPOs, suggests:

- The status quo arrangements fall short of the outcomes above;
- While regulatory and industry work is underway, relevant to most outcomes, we cannot say whether these will sufficiently ‘close the gap’ between the current state and the outcomes;
- This is partly a result of there being no comprehensive description or vision of the resulting connection access and pricing ‘system’ that is desired and being worked towards.
- Equally, while there are two regulators and a number of industry groups working towards a more efficient connection access and pricing regime, it is not clear how this work is being coordinated and sequenced, or monitoring the degree to which the improvements are delivering a connection access and pricing system that is in the public interest.

Recommendations for action

Below we include a set of recommendations that would close the gap between today’s reality and our ideal outcomes. This list is by no means exhaustive, and do not preclude other ways of achieving the outcome. These five actions are proposed because, collectively, they support the 5 outcomes above, and we believe they are all actionable in the near-term.

1. Amend the recent changes to the Commerce Commission’s information disclosure regime to achieve materially improved digital network visibility⁵ and ensure there is alignment with the connection pricing workstream of the Electricity Authority’s Distribution Pricing Reform⁶.
2. The Authority to incorporate a set of distribution pricing principles into the Code that give connecting customers confidence that connection prices are cost-reflective and do not unduly deter efficient investment in charging infrastructure, with appropriate monitoring and enforcement
3. Augment existing Code provisions⁷ for distribution network connections to include all types of network connections (including public EV chargers) with the clear purpose of enabling efficient network connections.
4. Ensure that mechanisms under the control of the Commerce Commission and Electricity Authority, which deal with competitive practices, apply to all connections including for EV charger access.
5. Identify which entity should have an overall responsibility for articulating the future connection access and pricing system that is desired, monitoring the degree to which regulatory and industry changes deliver progress towards that system, and lend it some urgency.

Executing these recommendations, or even delivering the outcomes above, does not guarantee a socially optimal level of charging infrastructure. Our view is that the broad outcomes are, at least, necessary for this level to be realised.

However, there may be factors beyond the five outcomes which prevent CPOs’ rational evaluation of potential investments from leading to the socially optimal outcome. These factors could include potential market failures. This work has not considered the likelihood of this occurring, or what those other factors or market failures are.

⁵ Commerce Commission’s targeted information disclosure review 2024 final decisions to relieve network constraints (Amendments D3.1, D3.2 and D3.3)

⁶ Electricity Authority’s Distribution Pricing Reform – Next Steps workstream (Section 3 and upcoming report from the Network Connections Technical Group)

⁷ Electricity Authority Electricity Industry Participation Code 2010 Part 6. This Code only apply to the connection of distributed generation. There is no equivalent Code that applies to the connection of demand-side customer connections.

2 Context

2.1 CPO Context

Customers looking to connect to an Electricity Distribution Businesses' (EDBs) network will undergo some process to determine access arrangements and pricing. For customers of a similar size to a public EV charger, the process will invariably be the same as that faced by CPOs. Previous work has identified that these processes have a number of transaction costs – slow processes, the need for a number of iterations, uncertain outcomes, and contracting risk. Hence improvements to this process will benefit CPOs and other similarly sized customers alike.

However, there are some aspects of the underlying CPO business which results in them having a unique experience of connection access and pricing:

- Most CPOs are looking to invest in multiple locations around the country, and often simultaneously or within a very short space of time. Each location requires a bilateral discussion with the relevant EDB. Few other connecting customers would be in this position;
- CPOs often have a degree of flexibility in the exact location of their connection, noting they must ultimately target spots that are convenient for EV drivers. Most other connecting customers have a fixed location (e.g., a piece of land).
- Up-front electricity connection and ongoing network and retail charges are a significant proportion of a CPOs fixed and variable costs;
- Demand at many locations is expected to grow through time (as EV uptake increases) – up-front decisions made about capacity must allow for an uncertain range of scenarios of future requirements;

CPOs are not alone (amongst commercial load types) in having each of the attributes above. But, while some other load types share one or two of the above attributes, it is hard to conceive of another load type that has most or all of them.

As a result, CPOs will invariably experience a higher overall level of transaction cost than almost all other connecting customers. Specifically:

- CPOs are often seeking a number of connections in a short space of time: the multiplicity of bilateral interactions with multiple EDBs are incurring the transaction costs numerous times over.
- The costs of connection and ongoing network charges are a large proportion of their cost-of-service, amplifying the impact of any inefficiency in pricing on the viability of public charging

2.2 EDB context

We also need to acknowledge the business context for EDBs. They have complex and dense networks to manage, and these networks are the critical infrastructure that connects households and businesses to the national grid. EDBs are also regulated businesses.

In the specific context of connections, EDB experience to date with load connections has largely been one-off connections, or multiple homogeneous connections (e.g., housing developments).

For the majority of these connections:

- The customer will have a fixed, pre-selected location in the network.
- The cost of the customer's facility being connected will be an order of magnitude larger than the connection cost
- The planning and construction timeframes for the customer's facility will be at least months, and possibly years
- The customers will have relatively static demand requirements, in the medium term.

At the network level, there will invariably be some degree of cost variation between different sites, some of it unrelated to the network assets themselves such as access, ground conditions, and temporary traffic

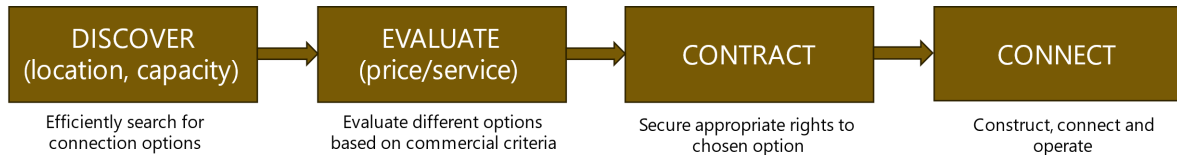
management costs. We understand traffic management costs associated with new connections, especially on state highways, can be a considerable proportion of overall connection costs. We do not have any information to illuminate how variable the other costs are.

The connection access and pricing processes for new connections have understandably been formed, and continued to adapt, to these dominant characteristics of new connections.

It is in this context that the CPOs, with their different attributes, are experiencing elevated transaction costs. Notwithstanding that, we reiterate that these 'traditional' connection types would still benefit from improvements to the connection regime.

3 The CPO customer journey

To identify the outcomes required of a connection access and pricing regime, it is important to anchor the assessment around the 'customer journey' associated with a CPO seeking access to the network. A high-level customer journey is shown below.



From the perspective of the connecting party (in our case, a CPO), distribution access arrangements include the process by which the various options can be efficiently discovered, evaluated and the best option (from the perspective of the CPO) chosen. This can be thought of as the process by which the CPO establishes the 'business case' to invest in a charging location. Key inputs into such a business case are the potential connection locations in an area, the levels of network capacity that can be secured at those locations, the prices at which that capacity can be secured, and what that means for the customer (EV driver) experience.

This chosen option then needs to be secured through contract in a way that provides the CPOs a reasonable set of rights to proceed to commissioning and operation.

There are other important factors for CPOs such as their confidence in the reasonableness of the overall 'cost' (capital contributions and ongoing use-of-system charges), and, for CPOs that operate nationally, consistency amongst EDBs.

Finally, in the case of CPOs there is the added impetus of being able to build out the charging network to a level of customer experience (density, charging speed and cost of charging), and at a pace, that will support (or not impede) electrification of transport and, the ultimate goal, decarbonisation.

4 Describing an efficient access and pricing regime

4.1 Outcomes required

Listed below are the outcomes CPOs require from the network access arrangements (including pricing) to support increased uptake of electric vehicles⁸.

Taken together, these outcomes (and the deliverables that sit under each of them) would form 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.

We acknowledge that some of these outcomes require changes to EDB practices (including investment). These will take time to implement. However, our intention is to describe a future state, rather than be constrained by what can practically be delivered today.

The outcomes that would enable CPOs to efficiently deliver this infrastructure are:

1. A clear and predictable commercial framework for access which enables CPOs to efficiently evaluate both price and connection capacity for prospective locations, delivering:
 - Digital infrastructure that enables connecting parties to quickly and efficiently search for different location and capacity options, and select the one that best meets their criteria;
 - Connection prices (capital contributions and ongoing use-of-system charges) are digitally available for locations where CPO requirements would not exceed available capacity and CPO equipment meets standard connection requirements;
 - Access to clear and transparent pricing structures and capital contributions policies with plain-English guides, giving confidence that connection costs (including the split between capital contributions and use-of-system charges), have been developed based on a robust economic framework, are cost-reflective and do not unduly deter efficient investment in charging infrastructure⁹;
 - Price structures provided by EDBs to include efficient incentives for EV chargers to limit the impact on network investment via e.g., smart demand management.
 - Mandatory maximum EDB response times to confirm available capacity and the accompanying pricing. These timeframes need to be based on a reasonable expectation of an efficient connection 'system'.
2. A significant improvement in national consistency of access arrangements, that supports CPOs delivering an efficient national public charging network, delivered through:
 - Nationally standardised digital tools, connection processes, pricing structures, capital contributions policies and equipment standards that reduce the transaction costs of dealing with multiple EDBs

⁸ The outcomes are derived from a set of principles that should underpin network access arrangements, developed in an earlier Sapere report.

⁹ Here we are referencing the fact that there can be a spectrum of prices that meet the requirements of 'cost-reflective' and subsidy-free (i.e., the price lies between incremental and standalone cost). This is due to different ways that EDBs may allocate common costs between different customer groups, including potential connecting parties such as CPOs. However, some allocations of common costs may result in the connection not proceeding. If, in this case, the investment triggering the connection request would have been economic at a lower price (that was still above incremental cost), this is an economically inefficient outcome, as the common costs, still needing to be recovered, will be shifted on to other customers.

- Nationally consistent standard connection requirements for a range of voltage types which underpin a fast-track process for applications that meet these requirements.
3. The commercial framework can be secured by reasonable, balanced and standardised contracting terms, delivering:
 - Terms which clearly demarcate the point at which offered capacity and price move from indicative to binding, so that connecting parties can proceed with confidence
 - A first-mover framework that seeks payment from connecting parties only for the capacity they request (and would utilise), and balances restrictions on hoarding with the need for investors to obtain financial closure; and
 - An effective avenue to appeal.
 4. An access regime that enables the greatest degree of competition for deployment of EV charging networks, specifically:
 - Ensure that mechanisms under the control of the Commerce Commission and Electricity Authority, which deal with competitive practices, apply as required to all connections including for EV charger access
 - Equipment standards and processes that enables the accreditation of installers and thus local and national competition among contractors.
 5. The connection access and pricing regime to be overseen, monitored and evaluated by a regulatory agency, including:
 - Performance monitoring of connection timelines and costs, benchmarked against national or international standards
 - National reporting, monitoring and independent benchmarking of connection costs to improve confidence in the efficiency of costs.

4.2 These outcomes are not being delivered today

We understand from CPO feedback that the outcomes are only sporadically being delivered today. Based on our previous work, we identified that:

- It is neither routine or easy for CPOs to have access to key network information in a digital format, which would allow them to focus on sites that would likely be favourable for EV chargers. In the absence of this, they must conduct their exploration of network connection options via bilateral discussions with EDBs. CPOs report that these bilateral discussions vary in terms of timeliness between different EDBs;¹⁰
- EDB connection applications processes vary across the country, and while response times are good in some networks, across the country response times to connection applications are highly variable. Of particular concern is that the final cost of connection is sometimes not finalised until very late in the negotiation process;
- CPOs have little confidence that connection prices are cost-reflective and take into account the risk of deterring efficient investment in charging infrastructure;

¹⁰ While we are very encouraged by the dynamic 11kV capacity maps produced by Powerco, we aren't aware of any other networks publishing these and, irrespective, lower than 11kV networks remain largely invisible.

- The split between up-front capital contributions and ongoing use of system charges, and the underlying methodology, is often very difficult to understand, and is different for different EDBs;
- EDBs' access or pricing methodologies do not routinely provide clear and efficient commercial incentives to deploy smart charging management.
- EDB approaches to investment in network infrastructure often leaves CPOs with an unreasonable level of cost and risk associated with being a 'first mover';

Failure to deliver the five outcomes in Section 4.1 will – at best – result in a level of investment in public charging infrastructure roughly equivalent to that achieved in 2023 – 21 chargers per month. At this rate, there may be as few as 2,640 chargers in 2030, including those available now¹¹. The result will be a level of public EV charging that is below the “socially optimal” level for the reasons outlined above, namely that CPOs face a high level of transaction costs from investigating, apply for, and paying for network access¹². While we haven't calculated the socially optimal level, it can be thought of as the state where the level of public EV charging infrastructure no longer acts as an inefficient constraint on the rate of growth of the EV fleet and, to that extent, electrification of the transport fleet is enabled.

We would be very surprised if allowing these transaction costs to continue is the best course of action from a public benefit perspective. We reiterate that the outcomes above will improve the connection experience for a wide range of connections, and are aligned with principles from regulatory and industry workstreams that are focused on a much broader set of connecting customers than just CPOs.

Moreover, many of the 'gaps' between the current state and our outcomes above are being identified by regulators and other industry groups:

- The need for **digitally available network capacity and pricing information, and tariffs that reward smart demand management**, are all steps required as part FlexForum's Flexibility Plan^{13 14}. These steps were included to deal with a broader range of connection customers than just public EV chargers; for example, 'virtual power plant' entities and other types of flexibility service providers, emerging globally, may look to install flexible resources in those parts of the distribution network experiencing congestion. Having access to digital information where price-service tradeoffs can be done efficiently is critical to the successful deployment of flexibility services.
- The ability for customers to efficiently make price-quality tradeoffs is one of the Authority's distribution pricing principles; and
- The concern that connection prices are inefficiently high has triggered the Authority to consider Code changes, noting *“some connection pricing settings may be resulting in inefficiently high upfront charges that could act as a barrier to electrification. It is important to ensure upfront charges are set at an efficient level. This will help access seekers and distributors optimise their investments, resulting in better network utilisation and lower costs to consumers.”*

More broadly, the pricing outcomes above are aligned with the Electricity Authority's Distribution Pricing Principles.

Partial delivery of these outcomes won't get us to the optimal density of the charging network – the absence of any of the 5 outcomes above will leave the CPO facing a “weak link” – an unclear, inefficient or undercooked set of commercial incentives; unbalanced contracting terms, lack of competitive pressure or national inconsistency leaving CPOs to deal with a multitude of different arrangements around the country.

As outlined above, these outcomes would not only result in improved efficiency for CPOs, but also other connecting parties wanting to electrify their homes, businesses and factories as we seek to decarbonise the economy.

¹¹ According to EECA, there are 1,200 public EV chargers today

¹² Government's target of 10,000 EV chargers by 2030 implies a 7-fold increase in the level of investment compared to today.

¹³ Steps 7, 12, 14 and 16. FlexForum's Flexibility Plan identifies practical, scalable and least-regrets steps needed to see the development of distributed energy resources and flexibility in New Zealand. FlexForum's Flexibility Plan reflects feedback from a broad set of industry participants. See <https://flexforum.nz/flexibility-plan/>

¹⁴ See FlexForum's [“Progress with delivering the Flexibility Plan”](#), August 2024

For the avoidance of doubt, we are not arguing that the genuine and reasonable costs that CPOs trigger as a result of their connection to the network should be shared by a wider group of customers. The Authority's distribution pricing principles require that prices must lie between avoidable costs and standalone costs. We agree. However, it is the way in which upstream costs (such as network upgrades that benefit a broader group of customers) and common costs are allocated across consumer groups that determines where the final price lies in the incremental-standalone range. While we have not undertaken our own analysis of cost allocations, the Electricity Authority has identified that "*most distributors do not have a clear view of how allocations to consumer groups sit within the subsidy-free range*".¹⁵ As a result, the Authority has indicated it will conduct more in-depth analysis and provide more specific guidance on these allocations.¹⁶

Finally, we note that there remains a risk, having made the appropriate changes to the connection access and pricing regime, that the resulting investment in charging infrastructure is insufficient to provide the greatest net public benefit. If this occurred, this would suggest that there are other factors at play, including potential market failures. This work has not considered the likelihood of this occurring, or what those other factors or market failures are. However, should an entity be appointed per Recommendation 5 above, a core responsibility should be to make this determination at the relevant time.

¹⁵ Electricity Authority (2023), "Targeted reform of distribution pricing: Issues paper", 6.11(b)

¹⁶ Electricity Authority (2023), "Distribution Pricing Reform: Next Steps", 6.6

5 Current change efforts relevant to our outcomes

5.1 Institutions relevant to the CPO outcomes

Today, there are a range of regulatory investigations and change initiatives underway focused on the distribution sector. The two primary regulatory agencies are:

- The **Commerce Commission**: the economic regulator who, under Part 4 of the Commerce Act, regulates the 29 monopoly distribution businesses and Transpower by creating financial incentives through revenue limits and quality standards (for 17) and improve transparency of performance through information disclosure (for all).
- The **Electricity Authority**: the electricity market regulator, whose scope includes regulating pricing and access to networks. The Authority’s statutory objective is to “promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers.”

The Commerce Commission and Electricity Authority’s work is focused on making the distribution sector provide better services to connecting parties, including CPOs. There are other government agencies who are considering how to achieve the most effective public EV charging network, such as:

- Ministry of Transport¹⁷
- Ministry of Business, Innovation and Employment¹⁸
- Crown Infrastructure Partners¹⁹
- Waka Kotahi²⁰ and
- EECA²¹.

In addition, there are industry groups that are seeking to help improve the distribution sector’s performance and, in some cases, specifically on public EV chargers, such as:

- The FlexForum²².
- The Electricity Engineers Association (EEA)²³.
- Electricity Networks Aotearoa, the association of all 29 EDBs, and their future-focused workstream “Future Networks Forum”²⁴.

While these member-based organisations do not hold any statutory mandate, they are able to coordinate members to provide expert advice to regulators, develop standards and processes, and pilot and implement improvements to the connection ‘system’ voluntarily, which can be quicker than a regulator.

We understand the Electricity Authority, EEA and ENA are collaborating on work directly relevant to connections. We understand that the arrangement between these three entities allocates regulatory responses to the Authority, technical standards to the EEA and “best practice processes” to the ENA/FNF. We expand on this below.

¹⁷ [Ministry of Transport’s National EV Charging Strategy](#)

¹⁸ [International case studies: regulatory policy solutions to support public electric vehicle \(EV\) charging infrastructure](#)

¹⁹ [Crown Infrastructure Partners, Statement of Intent 2024-2028, Priority 7.6 “Supercharging electric vehicle infrastructure strategic priority”, page 11](#)

²⁰ See National EV charging infrastructure plan and Minimum requirements for the public charging network [here](#)

²¹ See for example the EV charging network dashboard [here](#) and 2021 consultation on public EV charging development [here](#)

²² See FlexForum A whole-of-system EV charging workplan [here](#)

²³ See for example EEA Expanding the electric vehicle charging infrastructure in NZ – webinar [here](#)

²⁴ See the work of the Future Network Forum including CPO connections to the distribution network [here](#)

5.2 Current regulatory and industry workstreams relevant to the CPO outcomes

A number of recent and current workstreams in the Commerce Commission and Electricity Authority are dealing with both network access and pricing issues relevant to CPOs (and to load customers more generally). This activity recognises that both regulators are aware of the challenges currently faced by networks and connecting parties in respect of access and pricing.

The key regulatory workstreams we have identified from public information are:

- **The Commerce Commission’s Targeted Information Disclosure Review 2024 (TIDR 2024):** This decision is final, and included three amendments to the information disclosure regime which require EDBs to publish a specified list of information for each zone substations and, separately, to disclose very limited information about network in a generic geospatial file format. There is an equivalent requirement for EDBs to provide capacity, constraint primary cause and default solutions in Asset Management Plans (AMPs)²⁵
- **The Commerce Commission’s Default Price Path for 2025 consultation and draft decision (DPP4):** The final decision by the Commerce Commission (expected in November 2024) will influence the incentives for the 17 revenue-quality regulated distributors to invest in their networks over the next 5 years. Some of the EDB operational and capital expenditure could address issues that are critical to delivering our outcomes above (e.g., low voltage visibility, where the draft DPP4 decision has approved a step-change in operational expenditure for EDBs who are improving LV visibility). We also note that changes to EDBs capital contributions policies may affect the balance between direct customer contributions (not regulated by the Commerce Commission, but under active consideration by the Electricity Authority²⁶) and investment by the EDB, the latter of which is ultimately limited by the revenue the DPP decisions allow the EDB to earn.
- **The Electricity Authority’s ‘Delivering key distribution sector reform’ (DKDSR) workplan (Oct 2023),** which is dealing with a number of issues raised in its 2022 “Updating regulatory settings for distribution networks” issues paper. Of key relevance is the workstream relating to addressing non-price barriers to efficient connection of load, which is being delivered through its “Network Connections Project”. The Network Connection Project’s outcomes are likely to result in a set of important changes to Part 6 of the Code. Currently Part 6 regulates network access (and some aspects of pricing) for distributed generation (DG), but is silent on access and pricing arrangements for demand-side connections. A working group – the Network Connections Technical Group (NCTG) – has been established to guide the majority of the Project’s work²⁷. Components of the broader DKDSR workplan that are peripherally relevant to our outcomes are improving distributors’ access to meter data and how the Authority will monitor distributors’ progress on investment in network capacity and use of non-network solutions.
- **The Electricity Authority’s “Distribution Pricing Reform – Next Steps” workstream (May 2024).** This work programme includes a number of aspects relating to connection pricing, specifically capital contributions, recognising:

“Connection pricing arrangements are important because they affect:

- a) allocation of costs between access seekers and existing network users
- b) incentives for access seekers to ensure connection costs are efficient, for example, in terms of the location and capacity of their connections
- c) incentives for distributors to ensure connection costs and their wider growth programmes are efficient
- d) transaction costs for access seekers and distributors coordination incentives”²⁸

²⁵ Commerce Commission’s targeted information disclosure review 2024 final decisions to relieve network constraints (Amendments D31., D3.2 and D3.3)

²⁶ Electricity Authority (2024), “Distribution Pricing Reform: Next Steps”

²⁷ See the [NCTG page](#) on the Authority’s website.

²⁸ Electricity Authority (2024), “Distribution Pricing Reform: Next Steps”, para 3.10

The workstream also considers the structure of use-of-system charges and how distributors allocate their overall revenue to specific customer groups, ensuring pricing is “subsidy free” (i.e., between incremental and standalone cost).

The workstream is expected to produce a draft Code amendment for consultation in late 2024, which will regulate connection pricing

Appendix A shows, in more detail, how each of the above workstreams are relevant to our outcomes and their underlying principles.

5.3 Industry workstreams

In addition, we are aware and encouraged that the Electricity Authority, the EEA and the ENA are collaborating on work directly relevant to connections.

The ENA has established a “Streamlining Connections” programme. We understand that the work is informed by ENA engagement with CPOs (and other connecting parties), and that CPO feedback is very similar to the issues we describe above in Section 2.3.

The ENA’s FNF has used this feedback to propose 13 potential ‘projects’ that could fill the gaps in the service provided by EDBs. These potential projects may improve the current outcomes for CPOs. With the very limited information about the projects, we cannot say whether successful delivery of these projects will achieve the outcomes outlined in Section 2. Further, at the time of writing, it appeared that these projects were yet to be triaged for delivery, so we cannot say which are going to be progressed. As such, they are not included in the table below. However, we understand that this triaging process is expected to occur by September 2024, and some implementation will occur in the final quarter of 2024.

5.4 Risks remain that the outcomes are not delivered

As outlined above, regulatory and voluntary industry development is underway that should bring us closer to the outcomes in Section 4.1. This is encouraging.

However, specific change proposals have yet to be developed. This means that we cannot definitively say whether the resulting changes will deliver the outcomes required. We highlight three delivery risks below.

5.4.1 How interdependencies are actively managed is not apparent

Our previous work has highlighted strong interdependencies between aspects of our outcomes and principles in Section 2²⁹.

Most of the Authority’s workstreams acknowledge the inter-related nature of their different workstreams, both within the Authority, and with other agencies³⁰. However, it is not clear how these interdependencies are being managed. While the MOU between the Authority and the Commerce Commission speaks to both general and specific areas of related work, we cannot be definitive about how this is practically achieved in the case of the connection access and pricing regime.

The deliberations and outcomes of any individual workstream inevitably require tradeoffs between competing objectives. This is a typical part of regulatory design. However, where an overall ‘system’ is being re-designed through multiple workstreams, some tradeoffs will be informed by, and/or will impact, the outcome of other related workstreams. Managing the information flows – and the timing of

²⁹ An important example is that, for most connecting parties (not just CPOs), access and pricing are inseparable parts of the commercial decision making for the connecting party. Evaluating the most cost-effective way to connect often involves trade-offs between price and connection service.

³⁰ Ee e.g., Distribution Pricing Reform: Next Steps, para 2.10; Delivering key distribution sector reform, page 4.

information flows – between workstreams are critical. It is therefore vital to proactively manage these interconnections, in order to obtain the best overall design.

As an example, within the Authority, regulatory workstreams relating to connection access and connection pricing are being delivered separately. Separate workstreams are not a problem per se, but, as outlined below, there doesn't appear to be a central overarching vision of the connection 'regime' – access and pricing – which would act as a central reference point for both workstreams.

In terms of sequencing risks, it appears that a draft Code amendment to regulate connection pricing is expected to be consulted on late 2024. It is not clear how this timing will be informed by with consultation on the first phase of the NCTG's work on non-price barriers (see above, consultation paper expected in the last quarter of 2024), or the second phase (potential changes to Part 6 in respect of load connections) which is only expected to commence late 2024. Further, as outlined above, there is a strong interaction between connection pricing and the outcomes of the Commerce Commissions DPP4 decisions, due in November. We acknowledge that both the Electricity Authority and Commerce Commission have identified this interdependency³¹, and are working to manage it.

Beyond the two regulators, we presume there will be cases where the work of the ENA/FNF and EEA is expected to inform the regulator's decision making (and vice-versa). As outlined above, we understand the ENA are planning on implementing and testing 'quick wins' late 2024. It is not clear yet which projects these will be, and how closely related they are to the finalisation of the Part 6 amendments, or the draft Code amendment for regulating connection pricing.

For the avoidance of doubt, we are not alleging that there is no coordination – CPOs are aware that some aspects of the work is being coordinated (e.g., between the FNF, the EA and the EEA). We are observing that the customers who will inherit the final outcome are not part of this coordination, nor do they have clarity on how the tradeoffs between workstreams are being managed, eg, if they are guided by an overall description of the desired outcomes (see below). These customers want to provide feedback not just on individual components, but also how the overall connection access and pricing regime is being improved (from the perspective of the customer). The interconnectivity between these many workstreams is critical in delivering the outcomes, and the risk of 'lock-in' from lack of coordination needs to be managed carefully.

5.4.2 There appears to be no guiding description of the desired outcome

We believe that, given the small number of regulatory institutions and industry entities involved, coordination issues should be able to be dealt with. However, a key guiding mechanism for coordination should be a common articulation of the outcomes being sought from the regulatory and industry activity. The lack of such an articulation – which describes an overall system, rather than a selection of point-solutions – is probably the key reason why there is a gap between current efforts and the outcomes outlined above.

An example of such a description guiding market design recommendations is contained in Sections 3, 5 and 6 of the Market Development Advisory Group's "Price discovery in a high renewables system" recommendations paper. MDAC's set of outcomes were the reference point for all 31 recommendations, including how they were prioritised into three tranches for the Electricity Authority³². This process was overseen and coordinated by a group with members that spanned generators, EDBs, retailers and Transpower.

Through their workstreams, the Authority and Commerce Commission identify a number of *problems* faced by distributors and connection seekers. What appears to be missing is a coherent description of

³¹ There are extensive references to the interplay between the Electricity Authority's connection pricing work and the Commerce Commission's DPP process in Section 3 of "Distribution Pricing Reform: Next Steps", 7 May 2024. In 3.36 of that document, they state they are working closely with the Commerce Commission.

³² [MDAC's Pricing in a renewables-based system recommendations](#)

the connection 'regime' which all institutions are aiming for. In their "Delivering key sector reform" paper, the Authority offers a generic view:

"The Authority is focused on ensuring the transition is as efficient as possible while maintaining energy security, system adaptability and affordability for consumers.....Our vision is for regulation of distribution networks to support innovation, promote competition and consumer choice in contestable markets such as flexibility services, and maintain reliability and security of electricity supply."³³

We would be concerned if this ultimate vision was only discovered through a reductionist approach where individual problems were identified and selected for progression to workstreams. The issues facing connecting parties are issues with the connection *system*, and – as we have argued above – these issues are interconnected. Addressing pricing without allowing CPOs to efficiently discover different capacity–location options will still result in a time consuming and expensive process. This, in turn, will result in a national deployment of charging infrastructure that is not focused on EV driver needs. Enabling digital discovery of connection capacities without enabling balanced contracts and efficient prices will continue to see CPOs favour those networks where they are comfortable contracting, and can understand the pricing. In either case, the customer experience of an EV driver seeking public charging will not lead to the socially optimal level of EV uptake and thus decarbonisation.

5.4.3 There is no entity tasked with articulating these outcomes, or monitoring progress

We believe it is important that some entity is responsible for articulating this future desired state. It would make sense for this entity to also monitor the progress of the various industry and regulatory workstreams towards this state, and the brief could include assessing whether these workstreams are appropriately resourced.

Our view is that, from a good practice perspective, this entity should be separate to those conducting the work. It could be the Ministry of Business, Innovation and Employment (MBIE), as part of its monitoring and evaluation role³⁴, could fulfil this role. We also observe that it could fit under the 'system stewardship' role of the Council of Energy Regulators, described as being:

*"...to support MBIE's regulatory stewardship responsibilities in the electricity and gas markets. The CER meets quarterly and is made up of the CEOs, or their substitutes, from MBIE, the EA, the CC and the GIC. The CER provides a forum for high level collaboration and information sharing to contribute towards **the efficiency and effectiveness of our energy markets regulatory system**. The CER takes a whole-systems view to consider regulatory issues and trends in the electricity and gas markets, and identify any overlaps or gaps. The CER also helps to facilitate a coordinated response in addressing issues for which there are overlaps or gaps."*[emphasis added]³⁵

There remains a risk, having made the appropriate changes to the connection access and pricing regime, that the resulting investment in charging infrastructure is insufficient to provide the greatest net public benefit. If this occurred, this would suggest that there are other factors at play, including potential market failures. This work has not considered the likelihood of this occurring, or what those other factors or market failures are. However, should an entity be appointed as we outline above, a core responsibility should be to make this determination at the relevant time.

³³ Delivering Distribution Sector reform, p2

³⁴ MBIE (2018), "Regulatory Charter: Energy markets regulatory system", page 20

³⁵ MBIE (2018), "Regulatory Charter: Energy markets regulatory system", page 21

6 Appendix - High-level review of regulatory workstreams

Outcome	Principle/deliverable	Responsible agency and workstream	What has to be done
Clear and predictable commercial framework for access	Ability for connections to evaluate different price, location and capacity options through digital search infrastructure	EA – Distribution Pricing Reform, Next Steps ³⁶ ; EA Network Connections project ³⁷ ComCom – Targeted Information Disclosure Review 2024 ³⁸ and DPP4 Draft Decisions paper ³⁹ , which approved a step-change in OPEX for all EDBs for costs relating to collecting and processing data for LV visibility Note; October 2023 paper suggesting that a Code change would be passed in 2024 that required MEP’s to contract directly with distributors to provide smart meter data to improve network visibility, on a PAYG basis.	New disclosure requirements under Targeted ID review 2024 relating to visibility of capacity not below 11kV which is relevant to CPO – needs to move to low voltage as well. TIDR Amendments D3.1, D3.2 and D3.3 need to be tightened up. D3.1 provides a list of information to be disclosed and D3.2 requires data about networks to be disclosed in a generic geospatial file format. D3.2 needs to be amended so that the list in D3.1 is included in the D3.2 format. DPP4 draft decision approves a step change related to the operational cost of accessing LV network data (including expenditure for software and analysis in some cases). Need EA support for making access to LV data more readily accessible. EA to pass the Code change to require MEPs to contract directly with distributors to provide smart meter data to improve network visibility
	Clear, transparent, cost reflective and subsidy-free pricing that does not unduly deter efficient investment in charging infrastructure. Access to clear and transparent capital contributions policies with plain-English guides.	EA – Distribution Pricing Reform, Next Steps ⁴⁰ (for capital contributions/connection pricing and revenue allocation); draft Code Amendment on connection pricing (consultation late 2024). EA – Targeted Distribution Reform Issues paper; EA – Distribution Pricing Practice Note	Binding distribution pricing principles that require prices to be cost-reflective and subsidy free, having considered the risk that high connection prices may inefficiently deter investment in new connections.. Need to introduce plain English guides to the mix of documents available to prospective connecting parties. These should be based on pricing methodologies that have common theory and application across all EDBs.

³⁶ Section 3

³⁷ Mentioned as a challenge on slide 11

³⁸ Amendments D3.1, 3.2 and 3.3

³⁹ Para C129

⁴⁰ Section 3: “We have decided to develop, for consultation, a draft Code amendment to mandate efficient connection pricing. We are concerned that inefficiently high upfront charges will act as a barrier to access seekers looking for the best option to connect to the network or existing consumers wanting to upgrade their connections. This could result in consumers losing out on the benefits of new investment and services (such as vehicle charging, heating electrification and more affordable new housing). On the other hand, we do not want to see upfront charges set so low that existing consumers have to pick up the bill for additional or upgraded connections. Access seekers’ upfront and ongoing payments should at least cover the costs they add to the network. This will ensure existing consumers are not made worse off and incentivise access seekers to ensure their connections are efficiently sized and configured. We are engaging closely with the Commerce Commission (the Commission) to ensure any decisions we make align with the Commission’s price-quality regulation”

	EDBs to provide incentives for smart demand management, and/or lines services.		There should be more specificity in the requirements for EDB's congestion management and connection and operation policies so that thermal and voltage constraints are identified, the basis by which demand-side flexibility – such as public EV chargers – can alleviate these constraints, and the value of alleviating the constraints.
	Fast track process for applications that meet homogenous connection types	EA Network Connections Project ⁴¹ , and NCTG.	Part 6 does this for DG (application processes embedded in Part 1 and Part 2 of Part 6). Determine the equivalent arrangements for connecting load that deliver the efficient level of EV chargers, and embed in Part 6.
	Mandatory maximum response times to provide available capacity and the accompanying pricing for all EDBs	EA Network Connections Project ⁴² , and NCTG.	
A significant improvement in national consistency	Nationally consistent equipment standards, processes, contract forms and pricing including ability for connecting party to register their Standard Connection Requirements; and regulatory monitoring of performance.	EA Network connections project ⁴³ Part 6.	Unclear if national consistency is an objective of the network connections project. EA (in collaboration with ComCom where appropriate) to aim for nationally consistent <ul style="list-style-type: none"> ● Standards and process ● Connection standards ● Accredited installers ● Equipment standards, ● Processes, ● Lines services agreements, ● Contract forms and ● Pricing including ability for connecting party to register their Standard Connection Requirements; and ● Regulatory monitoring of performance.
	Nationally standardised pricing structures Nationally standardised capital contributions policies.	EA Distribution pricing reform: next steps 7 May 2024	Develop the code to incorporate distribution pricing principles: <ul style="list-style-type: none"> ● Include national standardised pricing structures and capital contributions policies in the code

⁴¹ Mentioned as a challenge on slide 11

⁴² Mentioned as a challenge on slide 11

⁴³ Mentioned as a challenge on slide 11

			<ul style="list-style-type: none"> ● Ensure transparency in pricing policies by EDBs ● Monitor adherence to effective connection pricing ● Effective enforcement
Reasonable contracting terms	Standard processes and contract forms to clearly delineate the point where capacity and price move from indicative to binding	EA - The existing Part 6 provides an framework for DG, but not load.	Adapt Part 6 to apply to load
	Effective avenue to appeal.	EA - The existing Part 6 provides a connection access regime for DG, which technically provides an opportunity for a connecting party to allege a breach.	Develop avenue to appeal contracting terms that form a part of a benchmark or nationally standardised connection contract, and/or ensure sufficient provisions currently in Part 6 extend to load connections, providing an avenue for alleging a breach.
	Nationally consistent first-mover disadvantage framework [that balances hoarding and need for FID; and payment only for capacity requested]	EA – open letter to distributors re: first-mover disadvantage frameworks, 2022. Part 6 effectively has a first-mover disadvantage framework for DG, but not load. EA Distribution Reform – Next Steps ⁴⁴ paper raises the difficulty with optimising connection assets amongst first and later movers.	First mover disadvantage framework in part 6 to apply (amended as appropriate) to load as well as DER Needs to: <ul style="list-style-type: none"> ● limit hoarding (fair to hoarder) ● ensure that an access seeker only pays for the capacity they request.
Maximum use of competition	Ensure that mechanisms under the control of the Commerce Commission and Electricity Authority, which deal with competitive practices, appropriately apply to all connections including for EV charger access.	EA – provisions are in Part 6 for DG ⁴⁵ We assume this falls within the NCTG’s remit to consider changes to Part 6.	Consider whether current Part 6 (and broader Commerce Act) arrangements are adequate for demand-side connections, and – if not – what mechanisms need to be introduced.
	Standards and processes that enable contestability of contractors	EA Network Connections project ⁴⁶ Touched on in Distribution Pricing Reform: next steps as non – price issues	ComCom and EA to aim for nationally consistent <ul style="list-style-type: none"> ● Standards and process ● Connection standards ● Accredited installers ● Equipment standards,

⁴⁴ Para 3.10 and footnote 16

⁴⁵ 6.11

⁴⁶ Mentioned as a challenge on slide 11

			<ul style="list-style-type: none"> • Processes, Lines services agreements, • Contract forms and • Pricing including ability for connecting party to register their Standard Connection Requirements; and • Regulatory monitoring of performance.
Strong monitoring and oversight of performance	Performance monitoring of connection timelines and costs, benchmarked against national or international standards; National reporting, monitoring and independent benchmarking of connection costs	N/A	One entity is nominated to ensure all of these functions are coordinated and advanced in a timely fashion. They are also well placed to articulate and overarching vision. Need a monitoring and oversight regime that will deliver to metrics which cover the required outcomes and has the teeth to enforce the principles

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