Drive Electric CPO Subgroup response: Measures for transition to an expanded and highly renewable electricity system

Introduction

Please note that we have answered specific questions relating to the interests of the Drive Electric CPO Subgroup.

Drive Electric is an apolitical, not-for-profit organisation. We engage with government, media, industry, and individuals to continually promote the benefits of making e-mobility mainstream and encourage accelerated electric vehicle uptake across the country. Our board, member network and research partners are at the forefront of the electric vehicle movement. We are proud to be the catalyst for change and to provide expertise in the key conversations bringing New Zealand closer to a fully electric future.

Drive Electric represents a member base comprising new car OEMs and retailers, used car importers and distributors, infrastructure organisations (electricity generators, distributors and retailers, electric vehicle service equipment suppliers), e-bike/scooters, heavy vehicle importers, finance, fleet leasing and insurance companies, along with electric vehicle users. We have more than 70 members from across the e-mobility ecosystem.

Drive Electric has established a subgroup of Charge Point Operators (CPOs) to specifically focus on the barriers to investment in public charging infrastructure in New Zealand. This group comprises Tesla, Meridian, Jolt, ChargeNet, Z Energy (Z) and BP. All these businesses provide a range of charging services to New Zealanders and have significant private capital to deploy in further building out New Zealand's charging network. These businesses have different operating models and provide different types of charging solutions. However, their experience to date has been relatively consistent.

Responses

Distribution networks for growth (p. 74)

29. Do you agree we have identified the biggest issues with existing regulation of electricity distribution networks?

We support the issues identified. However, the barriers facing public charge point operators (CPOs) go beyond what is described in the paper in the following areas:

Inconsistency

CPOs are rolling out a nationwide infrastructure network of charging points that requires many thousands of connections to the 29 local electricity networks to create a consumer-facing service. The inconsistency of pricing approaches and connection processes is in itself a barrier to installing charging points. To roll out national charging networks, requires a CPO

to deal with potentially all 29 EDBs that do things differently in terms of pricing and connections. This in itself contributes to the costs and time to invest in the charging network.

Regulated information disclosure

There is a lack of information available from EDBs to make investment decisions, which exacerbates the inconsistency in policy, pricing and process between EDBs. (If information was available it would expedite engagement with EDBs because CPOs could assess business cases before having to engage EDBs.)

We think that EDBs should be required to disclose more information regarding:

a. Network spatial information GIS
b. Network capacity and constraint information
c. Detailed information on connection costs
d. Information on connection delivery times
e. Information on connection provisioning process

At present it takes a formal application to an EDB to ascertain whether there is capacity in the network. This asymmetry in information creates cost and slows down connections. In a sense this is a ‘fishing expedition’ and many applications do not go ahead. Some CPOs report this may be in the realm of 1 in 2.

For CPOs it would be useful to understand the location of cables and characteristics (e.g. capacity, cable size, material, No of ICPs connected) across the LV network. This is so CPOs can assess the point where they intend to connect to the network. Next best would be information at the distribution transformer level. Any level higher than this (e.g. zone substation) provides limited value (such as indication of whether additional upstream costs are likely or not) and doesn't provide enough information at the point of connection for the certainty required. In addition to the distribution transformer, understanding capacity on the 11kV distribution network cables would be beneficial.

Pricing policies - Connection costs

All CPOs report that the high up-front capital costs of network connections are the main contributor to abandoning some installations as uneconomic. They report large variations in costs for the same size connection across EDBs, which makes investment planning for national networks extremely challenging. See more in our answer to q.33.

Pricing policies - considering use of system charges

The cost of network connections are a considerable barrier for CPOs, as the paper identifies. However, these costs need to be considered against the use of system charges. CPOs all report that the financial viability of charger installations are adversely impacted by the annual charges for network use and energy consumption. They report that when combined with high capital costs, the payback profile of the many sites that are leased is beyond the lease expiry date. See more in our answer to q.33.

30. Are there pressing issues related to the electricity distribution system where you think new measures should be looked at, aside from those highlighted in this document? How would you prioritise resolving these issues to best enable the energy transition?

We support a dedicated access regime similar to Part 6 of the Code for public charging connections. We pick this up again later.

We note that the Electricity Authority has recently released a work programme exploring a Part 6 amendment for 'load connections'. We are told this will have a focus on public EV charging. We are concerned that decisions on this won't be taken until December 2025, which won't see any meaningful change taking place potentially until 2027 or 2028, even if pursued. We need to make progress before this time to accelerate the installation of charging infrastructure.

Network investment model to support the energy transition (p. 75)

31. Are the issues raised by electricity distributors in terms of how they are regulated real barriers to efficient network investment? Please give reasons for your answer.

The experience of CPOs suggest this is the case. EDBs and the ENA inform us that only so much improvement can be made voluntarily, particularly on matters relating to price, prioritisation, and consistency, under current regulatory settings.

As access seekers, CPOs are seeking a regulatory environment that:

- Enables rapid private sector charging investment at scale
- Mandates more consistency in EDBs approach (cost and processes) for those seeking connections across 29 EDBs at volume
- Supports a better customer (EV driver) experience

We have engaged in the Commerce Commission's IM submission and supported:

- Lowering (or removing) the IRIS incentive rate for connections
- Including a connection cost reopener

32. Is there enough scope to address these issues with the current ways distributors are regulated? If not, what steps would you suggest to address these issues? Are there other regulatory or practical barriers to efficient network investment by electricity distributors that should be thought about for the future?

We support a dedicated access regime similar to Part 6 of the Code for public charging connections. We pick this up again later.

Removing barriers to new connections (p. 77)

33. What are your views on the connection costs electricity distributors charge for accessing their networks? Are connection costs unnecessarily high and not reflective of underlying costs, or not? If they are, why do you think this is occurring?

All CPOs report that the high up-front capital costs of network connections are the main contributor to abandoning installations as uneconomic. They report large variations in costs for the same size connection across EDBs, which makes investment planning for national networks extremely challenging. Many CPOs have to abandon 1 in every 2 connection applications, because the economics are not favourable.

A survey of CPOs in September 2023 shows that 83% of CPOs are behind their internal plans for roll-out over the last 18 months. The majority of CPOs are not confident this will change over the next year. An internationally operating CPO says New Zealand is the most expensive country where they operate to get a connection.

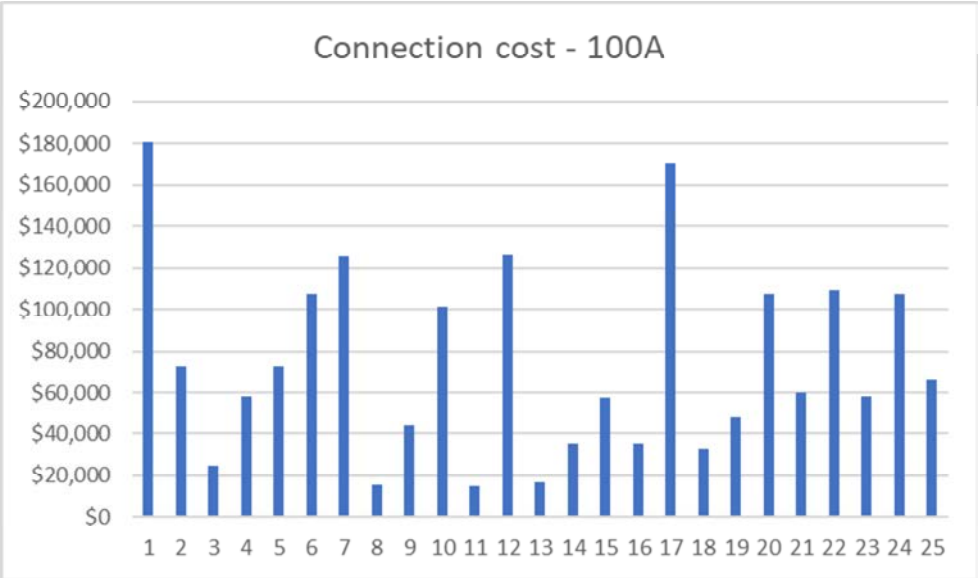
Example CPO A: CPO A has seen variations in pricing for a 100 amp connection from $127 up to $119,483, and for 160 amp connections from $127 up to $169,700 (see table below). The variation in costs between sites means some of these are unable to be delivered. The CPO reports that their public charging deployment has been slowed and many locations unable to proceed due to the cost of new connections.

Table - CPO A nationwide quotes for connections (100A and 160A)

Summary				
Connection size	**quotes**	**Avg**	**Min**	**Max**
100A, 69kW	44	$20,132	$127	$119,483
160A, 110kW	17	$39,417	$127	$169,700

Example CPO B - Auckland (100 Amp)
Another CPO (B) reports similar cost variance across 25 sites in Auckland – below, where close to 50% of the total commissioning cost for a charger is connection costs. The CPO reports that the comparable costs in Australia are less than 5% of the project costs.

Table - CPO B's connection cost indicative quotes in Auckland for 100A



This situation with capital cost levels is compounded by a first mover disadvantage if network upgrades are required. CPO D advises that, "*There is a disincentive to be the first customer to upgrade a portion of a network as we typically get lumped with most of the cost even if we*

don't use it all. If we don't take all the new capacity because we don't need it or don't want to pay the higher network charges straight away, then someone else can use that capacity for a lot less than we spent."

CPO E is looking at installing charging stations of a higher capacity than the examples above. They report that connections for the bigger capacity chargers face the same issues, "For a 750kVA connection, we're experiencing costs *per kVA between $139 and $606 + GST."*

The cost of network connections are a considerable barrier for CPOs as per the above. However, these upfront costs need to be considered against the *use of system charges.* CPOs all report that the financial viability of charger installations are adversely impacted by the annual charges for network use and energy consumption. They report that when combined with high capital costs, the payback profile of the many sites that are leased is beyond the lease expiry date. For example, a CPO reports that currently the per annum use-of-system charges exceeds the revenue for some of its sites.

Other CPOs report that they may have to derate the capacity of certain sites because they are charged as a major industrial user and billed very high annual use-of-system charges as a result. This is also very much a regional issue with significant variation across EDBs. A common challenge is that CPOs have no visibility of the costs associated with capital connections, nor can they see what EDB network costs are allocated to public EV charging. They have a difficult time assessing whether charges are fair and reasonable.

As an example, one CPO reports that, *"We have two sites that deliver roughly the same total kWhs per month and have the same peak demand. One of these sites is classified as a major user and one isn't. The difference in network charges between the two sites is 15x or 1500 percent. The network costs at the major user classified site represent 108 percent of revenue currently, but have ranged between 90-120 percent. The impact this has is that the CPO may re-rate sites like this and offer less capacity. Up to a point customers won't notice, but as demand grows it will constrain the customer offer until we get to the point where we have enough demand to sustain the massive step up in charges."*

There is a lack of smart pricing or innovation pricing options across EDBs:

- There is inconsistency across EDBs as to the size of connection that constitutes being a 'major user'.
- Pricing models for most EDBs generally show a huge step change increase when an access seeker goes from being a small user based on throughput, to a larger user based on peak demand (even if throughput is relatively low.)

More consistency in approaches across EDBs are required, as well as models that provide more gradual or linear pricing increases.

34. If you think there are issues with the cost of connecting to distribution networks, how can government deliver solutions to these issues?

We support a dedicated access regime similar to Part 6 of the Code for public charging connections. See below.

The alternative response in the short-term is public investment to support overcoming the costs of connections, as highlighted in para 239 of the consultation document. Currently, public funding set aside is predominantly in place to support journey charging and community charging outcomes. There is only limited funding that is targeted at the fundamental barriers, which is hampering investment in all forms of charger in most geographic areas. For example, there is very limited funding to support charging in urban areas where most of the EVs actually are (and will be). This is particularly important in cities like Auckland and Wellington where there are suburbs with limited access to off-street parking. In the immediate term funding needs to be increased and broadened to support installation of chargers and overcome barriers in urban areas.

Whilst public investment can catalyse private sector investment many times over, it is not a long-term solution to the underlying issues. Additionally, investment does not overcome challenges relating to the speed of connection / inconsistency / process issues. In other words only enabling EDBs to prioritise and accelerate connections will fix those issues. This is another reason why we support a dedicated access regime, to ensure that public money is efficiently invested.

35. Would applying the pricing principles in Part 6 of the Code to new load connections help with any connection challenges faced by public EV chargers and process heat customers? Are there other approaches that could be better?

We support a dedicated access regime similar to Part 6 of the Code for public charging connections. We have addressed this in our submission to the Electricity Authority's Distribution Pricing consultation and in our cross submission.

As we have made clear in our engagement with MBIE and regulators, charging infrastructure in New Zealand is not keeping up with current demand or being built for the future because of the challenges associated with network connections. These barriers include:

a. The inconsistency of connection cost and ongoing charges between EDBs makes it very difficult for national public charging operators to prepare business cases.

b. Lack of network information makes it hard to determine where best to invest.

c. The level of connection costs, in some places, makes investment uneconomic, which is resulting in a postcode lottery.

d. Lines charges can further hinder business cases or may impact the actual charging services provided to consumers.

Public charging is unique class as an access seeker because CPOs are trying to establish consumer-facing national networks, relying on the 29 distribution networks to do so. This is also an issue now, as EV uptake is fast approaching widespread adoption. There are unique circumstances surrounding CPOs needs for public charging network access:

a. Each of these businesses is looking to install hundreds / thousands of charge points, building a national infrastructure network of public charging,

b. Given time, all New Zealanders will likely use this charging infrastructure,

c. Load management is also dispersed with chargers drawing load when used rather than a traditional consistent peak load; and

d. The diverse load of public chargers contributes to the efficient use of energy networks, during the day, rather than at home at the same evening time.

Given the need to move quickly and given the requirement for consistency, a dedicated access regime is the best course of action. This regime should:

a. provide connections based on efficient costs and be made to disclose that they are doing so.

b. price connections as a separate 'Public EV Charging' customer class and not a subset of 'non-residential' or such like class of customer, as at present.

c. allow provisioning and installation services to be contestable.

d. price connections in a consistent manner – that is, the pricing structures are consistent and predictable across EDBs, but the price levels reflect each EDBs costs and local network circumstances.

e. have consistent policies for capital contributions to connection costs for public charging.

f. provide flexibility - that is, one size may not fit all.

Chapter 9 Is the government's sustainability objective adequately reflected for market regulators? (p.86)

40. Will the existing statutory objectives of the Electricity Authority and Commerce Commission adequately support key objectives for the energy transition?

Public charging operators may be one of the early examples of the pressure that decarbonisation will place on networks to provide new connections. We hypothesise that, in due course, similar concerns may arise from other access seekers pursuing decarbonisation. Our experience suggests that current settings are not fit-for-purpose.

41. Should the Electricity Authority and/or the Commerce Commission have explicit objectives relating to emissions reduction targets and plans set out in law? If so,
• should those objectives be required to have equal weight to their existing objectives set in law?
• Why and how might those objectives affect the regulators' activities?

This is worth consideration. It is very clear that both regulators must enable decarbonisation. However, if this mandate is not set effectively it could result in confused objectives for regulators. Fundamentally, we think there needs to be specific intervention to address the barriers of public charging connections in the short term around price and process. We think a direct approach is more likely to have the outcomes required for decarbonisation.

42. Should the Electricity Authority and/or the Commerce Commission have other new objectives set out in law and, if so, which and why?

43. Is there a case for central government to direct the Commerce Commission, when dealing with Electricity Distributors and Transpower, to take account of climate change objectives by amending the Commerce Act 1986 and/or through a Government Policy Statement (GPS)?

See 43.

44. If you answered yes to question 43, please explain why and indicate:
• What measures should be used to provide direction to the Commerce Commission and what specific issues should be addressed?
• How would investment in electricity networks be impacted by a direction requiring more explicit consideration of climate change objectives? Please provide evidence

This is beyond our level of expertise.

Supporting uptake of consumer energy resources (p. 102)

50. What do you think of the approaches to smart device standards and cyber security outlined in this document? Are there other issues or options that should be looked at?

We support the approaches to smart devices standards and cyber security outlined in the document. Our view is that smart charging will help make the most of New Zealand's existing electricity infrastructure and avoid unnecessary capital investment, by helping manage peak demand. It is critical that measures are taken to support widespread adoption of 'smart chargers' in parallel with the adoption of Electric Vehicles (EVs). EV smart charging could save the New Zealand economy close to $3 billion by 2035.

We have provided a full submission on this matter to EECA's Green Paper: Improving the performance of electric vehicle chargers. To summarise our views:

- Drive Electric supports the definition and regulation of 'smart chargers', but this needs to be done carefully. We believe functionalities for inclusion in a standard are:
    1. Capability to connect with an aggregator or service provider, for dynamic and remote management;
    2. Default off peak charging mode – particularly for the earlier stages of EV uptake;
    3. Open communications protocols; and
    4. Safety and other settings.
- The intent of this regulation should be to enable the creation of a demand response market in the interests of end users, in support of decarbonisation, and making cost effective investments in infrastructure.
- Drive Electric supports the exploration of a well designed government subsidy to overcome barriers to uptake of 'smart chargers', justified by the collective benefit of smart charging to the electricity system (including economy-wide savings) and decarbonisation.