Electricity Authority Advisory Group meeting notes

Sub Group – Network Visibility
1-2pm Monday 18 August

Attendees
Electricity Authority
Carl Billington - Principal Advisor Advisory Groups; Gary White – Principal Analyst; Lydia Ayto - Analyst; Grant Benvenuti – Manager Network Policy.

Advisory Group
Jamie Silk (Chair); Ryno Verster; Keith Scoles; Paul Baker; Joel Cook; Hinerangi Pere;

Apologies
Michael Jefferson; James Tipping, Karen Boyes

Confidentiality

The confidentiality status for this engagement was set as open, limited – which means that participants are welcome to indicate to peers and colleagues they are engaged on this topic and share high-level information in confidence and invite feedback. Please check first before sharing any specific details Gary shares with us though.

EAAG – Confidentiality & Information Sharing Rubric			
OPEN		**CLOSED**	
1. No restriction: share openly & widely	**2. Limited: share in-confidence with a pre-agreed circulation.** **This might also mean we are open about the topic we are discussing but not the detail yet.**	3.Temporary: will become open for sharing soon, but hold til then.	4. Confidential: Don't share.

Introduction and context

The Chair and the Authority team provide some updated context – noting that the project team are working towards a public consultation at the end of this year/early next year. The intent of this workshop is to provide the Authority with independent advice that will help inform the way the Authority approaches this issue and the consultation process.

The Authority sees greater availability of, and easier access to, network information offering multiple benefits: encouraging the development of flexibility services, encouraging investment in distributed energy, and ultimately putting downward pressure on electricity prices by reducing the need for network over-build.

The Authority will also convene an initial public workshop in mid-September to invite additional feedback from 'access seekers' – those who would expect to consume network usage data. The Authority wants to hear from both 'access seekers' and distributors The Authority is working jointly with ComCom on a discussion paper that is expected to be shared ahead of the public workshop.

The Authority is interested in learning whether access seekers are currently able to realise the benefits from network data and, if not, what the Authority could do to enable this more effectively and efficiently.

General discussion

Definitions: The group paused briefly to clarify definitions of low-voltage.

- It was suggested anything below 400 volts, with high-voltage from 1000 to around 22KV in New Zealand.

Theme 1: Value proposition

The first part of the discussion focused on testing the value proposition for this initiative: what's the value to access seekers? And does the benefit of making this information available justify the cost of doing so?

Feedback and commentary from EAAG members included the following key points on this aspect:

- There was strong agreement on the general value of the information.
- We need to agree the system that New Zealand is going to adopt and/or standardise the information across systems. That would need to be agreed and perhaps templated. This won't work if there are different types of data that can only be used and accessed on different systems.
- It needs to include not just the consumption data but also things like physical equipment requirements and replacement schedules.
- Encouragement to review some of the UK reports from their electricity transformation model – particularly regarding how they considered the calculation of benefit.
- Calling out the potential benefit for network investments: investors currently invest 'blind' to some degree – having visibility of the low voltage networks would

have benefit here. That can lead to overbuild and/or constraining the LV networks. There are significant planning benefits here.

- There's a future point – with increased electrification and EV uptake and alternate heat sources – that we're likely to see congestion where we haven't yet. The future congestion might not always happen where the current build investment occurs – so there are challenges in locating incentives and costs in the right place.
- There was brief discussion of the capacity maps that Powerco have been publishing, with agreement on the positive value of these. For example, these have been well used and received by those deciding where to place EV chargers etc.
- Although Powerco's maps were well received, it was observed this level of visibility is not consistent across the network. It was felt that there is a strong case for increased visibility and standardisation of assets and their hosting capacity – at both the HV and MV levels.
- Access seekers are managing multiple selection and design criteria both beyond and that interact with their connection needs. Alongside traffic mapping, and charge locations, they consider details like land access and built environment considerations – these things have material effect on costs for investors and developers. Having network visibility upfront, in a form that can be ingested and modelled alongside this other data, would make it so much more efficient to be able to plan and invest in a nationwide network.
- There was discussion about the need to consider how to segment and identify which customers get which benefits where and when (and therefore how cost should be attributed). It isn't straight forward.
- There was a strong desire from several members to see the benefit mapping work considering all the benefits of the investment in network visibility (e.g. benefits to access seekers discussed here and benefits for more efficient network planning and operation. With much of this (e.g. network benefits) in the scope of the Commerce Commission, and the combined business case having a material impact for potential investors, the Authority and the Commission need to work together for the benefits mapping. [The Authority noted both agencies are working collaboratively on the public discussion/consultation paper, so there is a joint conversation already in play. The two agencies see potential benefits and efficiencies resulting from this initiative, so it is relevant to both].
- A suggestion that EDBs could be given a long implementation transition period (12-18 months) and track capacity in the meantime – as a way to help take pressure off their processes and reduce concerns at the impact of the move.

The Chair checked whether there was consensus the EAAG members saw value in this initiative. This was affirmed. However, this does not mean that all members

agreed with all points above. Recognising that this is a short pre-consultation engagement, collectively aligned views were not sought.

Who is the access seeker?

- A question arose about who the 'access seeker' actually is and whether one reason for a lack of information at present is that EDBs aren't thinking about potential users and therefore don't know what information is most useful to them.
- Smaller EDBs may respond differently to this than the larger players. Small EDBs are less resourced and more likely to have capacity constraints in terms of identifying and presenting information in an automated way.
- We also need to consider the size of the pool of access seekers for different types – ensuring the benefit of our approach outweighs the immediate costs it would impose.
- The mass market are potential access seekers in the future as well – we need to plan in a way that doesn't preclude automated connection processes in future.

Theme 2: Usefulness of information

- Investors and service providers need a degree of certainty before they enter the design cycle for a new product. Some would love the opportunity to deal with an engineer directly and draw on their judgement and expertise to inform their design and investment planning (which some smaller EDBs are well placed to service without substantial systems development).
- Note: the below table was shared with EAAG members as a reference point:

Table x: three priority data sets for network visibility

Import capability	
Current and forecast remaining electricity delivery capability	kW or kVA by season for high-voltage network and low-voltage distribution transformer
Network augmentation plans	kW or kVA by high-voltage network and low-voltage distribution transformer
Export capability	
Current and forecasting remaining electricity export capability	kW static limit for export (based on some agreed probabilities) Export capability by season and time of day
Network augmentation plans	kW or kVA by high-voltage network and low-voltage distribution transformer
Curtailment	kW reduction in inverter capacity by duration of curtailment by network element (high-voltage network and low-voltage distribution transformer), season, time of day, and reason (e.g. export limitation, voltage condition)
Network connection	
Voltage levels	Historic average voltage by high-voltage network and low-voltage distribution transformer
Historic reliability	Historic SAIFI and SAIDI by high-voltage network and low-voltage distribution transformer

The other features the ESB and the AER considered were important for network

- One EEAG member set out three levels of information they see as needed:
    - Primary information on the network – the equipment, where connections are, what is connected, the level of capacity etc. In essence this is the data model of the network capacity from the distributor right down to the low voltage Transformers.
    - Secondary information – the current power flows, equipment age, GIS information, expected replacement/lifecycle timing, accounting information etc.
    - Tertiary information – forecasting power flows, load forecasts, voltage and power quality optimisation and management information etc.
- Optimising capacity planning, construction and investment all comes from the tertiary information – but for that you need the primary and secondary information in place as the foundation.
- There's real value to the access seeker, simply knowing what the capacity is and what the outlook looks like so they can quickly act on it: e.g. is it worth getting engineers involved and starting the design studies or is this project/ location not viable?
- Another group member commented that it all comes down to cost for developers and investors - they're planning a nationwide network and they just want to know where to site the public charging infrastructure that's going to be of most use to consumers and at the lowest cost.

- Export capability is a key factor across a network – people would expect the places with higher export capability to be the cheaper location sites and avoid those that look relatively constrained.
- There was discussion about the frequency of calculations to inform capacity maps – increasing the dynamic frequency makes the information of more value.
- Powerco plan to publish information on constraints on a constant basis, bringing in as many flex providers as possible to start dynamically managing capacity.
- Publishing this sort of information along with the flex market could help highlight for investors where the urgent value lies – this was seen as part of the business case for progressing this work.
- Authority staff suggested there's a high degree of conservatism that needs to be built into the current models because the quality of underlying network data is still somewhat uncertain – for example, it might not capture what's in the customer connection pipeline.
- That means that for a lot of networks, even if the data was published, it wouldn't be definitive and you have to do more detailed scoping work. We have to be mindful not to oversell benefits until these challenges are addressed as well.
- Another member noted the importance of how the information is presented and how user-friendly that is – being able to add overlays for traffic data and existing charging networks etc would be of great value in a consumer-focused interface.
- The importance of having both high and low voltage information available was also highlighted – for example part of your low voltage network might be unconstrained, but when you bundle that up into the high voltage part of your network, any constraint in the HV network will limit the ability to do anything at the LV level. So the data really needs to include the HV picture to tell a full story.
- It was noted that low voltage seems to be a lot harder challenge to solve because records are incomplete for the topology in a lot of cases, and it's a lot more dynamic (e.g. less demand/supply diversity). However, beginning with the high voltage network will likely increase our ability to address low voltage as we acquire the metering capability or the measurement capability, and develop better network plans.

Theme 3: How to make benefits accessible sooner

- Members agreed that having a user-friendly common interface for high voltage information as a first step made sense and then over time growing that to include more and more LV visibility would add value.
- The only question this raised for members was timeframes – what's realistic? And does the Authority want to drive the change or adopt a more passive approach?
- It was observed that access seekers will likely want to see the Authority drive the change, whereas some EDBs will likely have a counter position due to the costs it will impose on some networks to develop the LV visibility – the costs are more likely to fall on EDBs while the benefits accrue elsewhere.
- It was also noted that some parties have indicated they would be willing to pay reasonable amounts to access valuable information – without this information, potential investors are wasting time and money. There's similar frustration from distributors too who receive multiple applications from a single party trying to find the lowest cost site – multiple applications are the only way they can get the information at present.
- Things to consider: what should be published for free? How should cost be socialised across other network customers?
- There would also be benefit for EDBs, consultants and others to have some sort of national standard for data format and IT systems. It would be more efficient for everyone.

The Chair noted the general level of agreement around the group and asked whether there were any key points of difference in view that hadn't been raised. The following key points were raised:

- One member felt the Authority and the Commerce Commission will need to contribute jointly to setting a clear benefit context for any public consultation, suggesting: "You almost shoot yourself in the foot right from the start if there's no acknowledgement of the benefit discussion. Stakeholders will immediately want to know what benefit is being created for the cost this will impose - if we can't make some sort of link to the broader cost benefit discussion and broader customer benefit, we will struggle to get any support for this."
- The Authority and Commerce Commission need to be able to articulate where the benefits will be derived and where the costs fall.
- The flip side of this is network deferral. If you've got export or generation or DER happening but without the cost data, it's only half the information. Unless the

EDB is able to give some indication of how energy/investment might be deferred annually, it's hard to measure that value against the upfront connection cost. Investors need both sides of that information for it to be useful. The system operator gets approached with these sorts of queries all the time: you've got capacity on the network there, how much is it going to cost to connect? Will an upgrade be needed? It's the first question they hear from people as soon as they work out there's available capacity on the network.

- It was acknowledged that these calculations aren't easy – even the financial value of capacity in the system varies through the day and season to season. It will take some thought to help people build that into their business models.
- Authority staff noted that is precisely the reason for these conversations and seeking further stakeholder input – this conversation needs to happen at a sector level and we need access seekers and distributors in the same conversation as each brings part of the challenge and part of the solution.

The discussion concluded at this point, with the Authority thanking participants and noting the strong desire to see those capex benefits brought into the discussion otherwise the dialogue is only able to present half the value proposition.

Commented [js1]: @carl this does not make sense, can you check the transcript again or share the extract with me. It could be referring to how much energy needs to be avoided annually to defer costs or more specifically how much benefit an injecting party would see from network deferrals or something else?