

FlexForum session XI 23-06-22 notes

When	0900 – 1200, Thursday 23 June 2022
Where	Virtual
Who	<p>Glen Baxter (Ara Ake), Shay Brazier (ReVolve Energy), John Campbell (Our Energy) [to 1030], Jason Christini-Crawford (Ecotricity), Glenn Coates (Aurora) [apology], Jenny Van der Merwe (Kāinga Ora), Terry Paddy (Cortexo) [apology], Eric Pyle (solarZero) [part session], Buddhika Rajapakse (Mercury)[apology], Tom Rose, (evnex), Scott Scrimgeour (Wellington Electricity), Quintin Tahau (Transpower)[part session], James Tipping (Vector), Evie Trolove, (Orion), Mike Ullrich (Influx), Fiona Wiseman (Manawa),</p> <p>Guests: Nicole Kirkham, MBIE, Allen Davison, Electricity Authority, Tim Hewitt, Commerce Commission</p> <p>Facilitator: Geoff Sharples</p> <p>Secretariat: Craig Evans, Matt Smith</p>

Session notes

Five items were discussed:

1. Connection requirements
2. Scoping next steps
3. Initial end-to-end product and process description
4. Workplan, engagement and communications planning
5. Administration – governance, budget, and funding

Agenda overview

The group welcomed two observers: Allen Davison, Electricity Authority and Tim Hewitt, Commerce Commission.

The group agreed the agenda. Item 5 was shifted to become item 2.

Item 1: Connection requirements

The group considered the purpose of connection requirements.

- Connection requirements determine the access to the network of distributed energy resources, including the ability to supply flexibility
- Connection requirements are a function of network design and operation. Distributors build and operate the network to balance the supply of and demand for network capacity. Connection requirements are one of three complementary tools available to balance supply and demand for network capacity
 - upgrade the network to supply more capacity
 - optimise the use of available capacity
 - use connection requirements to manage individual and aggregate access to the network.
- Setting connection requirements involves calculating and applying access limits
 - Access limits can be either static or dynamic – dynamic limits increase access to the network by reflecting available network capacity
 - Applying access limits requires thinking about the equity, pricing and practical aspects of offering customers an ‘amount’ of access to network capacity.

Key points raised in discussion were:

- Physical maximum capacity (e.g. the fuse) is set at connection. Connection requirements are applied through the distributor agreement (between the distributor and retailer) and then the customer contract (between the retailer and customer). It is not realistic to change connection requirements to alter (ie, reduce) the level of access available to a customer without their agreement.
- Distributors have varying visibility over how a connection is used. Connections with export capability, eg, PV or Vehicle to Grid capability, are required to register (due to the safety related obligations). There is no requirement for ‘standard’ connections to advise anyone about installation of a new load, eg, EV charger, heat pump etc.
 - Imposing obligations on households installing a device, eg, an oven, heat pump or EV charger, to seek permission or notify a distributor would be a major step requiring careful consideration of the costs of doing so, including of administrative and enforcement. The preference should be to provide incentives to encourage DER owners to provide information about the capability of their devices
 - The EA is preparing an issues paper which will include questions about treatment of EV chargers, and whether something needs to happen sooner rather than later
 - The group discussed how, at a minimum, greater visibility of the use of low voltage network is required to provide capability to forecast constraints and to identify constraints when they occur.

- Greater visibility will improve understanding of the capability of the network. Data is available showing overvoltage problems in the middle of the night, probably due to transformer tap settings (an operational decision to ensure voltages do not dip too low during peak periods). Having better information will enable better operational decisions which optimise use of the network.
- Visibility will also support decisions to invest in and use flexibility, eg, virtual power plants, by providing information about access to network capacity across the low, medium and high-voltage layers of a network. Information about network constraints will assist investment and dispatch decisions.
- The group noted that distributors currently hear about over-voltage problems in the low voltage layer when equipment failures are reported to fire and emergency.
- Distributors have not in the past been concerned about the demand for network capacity in the 400-volt layer. Low voltage network design based on after diversity maximum demand (ADMD) assumptions reflecting typical load profiles have ensured sufficient capacity.
- In the near term, electrification, particularly electric vehicles, is expected to result in import-related network constraints. In the longer-term, uptake of PV can be expected to result in export-related network constraints. The ADMD assumptions of each distributor need to be revisited to avoid a mismatch between actual network use and ADMD assumptions
 - Planning and design assumptions regarding residential developments need to be considered to ensure they provide a reasonable basis for efficient investment decisions by distributors and households, particularly given many property developers are using covenants to require solar.
- Using dynamic operating envelopes (DOEs) to allocate available capacity in the network is a shift compared to the traditional approach which will require new capability and operating practices to better calculate capacity availability on the LV network
- DOEs will require interaction and coordination between the distributor and flexibility provider(s) managing the DER to ensure a connection remains within the access limits. This requirement highlights reflects that DOEs are not a tool for distributors to exercise set-point control of the connection and need to be applied via intermediaries.
 - Ideally DOEs will be accompanied by pricing/contractual arrangements which provide customers with options, eg, customer opting for a DOE-based access agreement will benefit from a pricing discount. Distributor pricing structures should reflect the costs of a DOE-based access versus 'standard' access.

- Regulated voltage limits need to be revisited. Existing voltage limits mean more solar should not lead to network problems but will negatively impact customers and DER owners by constraining output unnecessarily – existing voltage limits need to change to better balance network and customer outcomes
 - the default inverter settings which deliver the autonomous voltage response are easily changed by the customer. There is a strong incentive to change the inverter settings if they are preventing customer's from maximising their solar output
 - the ENA and EEA are considering voltage limits. The EEA was instrumental in defining the default limits that are in AS/NZS4777.2:2020.
- in the future, the goal is orchestration – the management and coordination of DER to alleviate threats to power system and network security by optimising the behaviour of DER to deliver benefits to the system and network, and ultimately the end-consumer. Orchestration will require the capability to optimise network use at various nodes, including the distribution transformer.
 - Obtaining visibility is a first step to orchestration. This includes having the systems capable of using significant volumes of data. The immediate challenge is funding the upgrade in data management systems.
 - The Commerce Commission is considering how to future proof the input methodologies, including recognising that historical costs are not a useful guide to future costs (making it harder to prepare the cost forecasts which underpin the default price path approach).
- Access and connection requirements should be adjusted sooner rather than later to ensure DER-appropriate connection arrangements are in place before significant uptake of DER.

Item 2: Scoping next steps

The group discussion next steps, including options for ongoing industry contributions, noting an overarching goal is to prevent the funding conversation from derailing progress and momentum.

Item 3: Initial end-to-end product and process description

The group discussed the initial end-to-end product and process description.

- The description represents a potential framework for a common and standard approach to transacting flexibility for the various use cases. The framework provides a basis for asking

- what steps in the transaction process can and should be common and standard?
- what can be done now and what capability needs to be developed?
- The group requested developing the framework into a wire diagram or process map by applying it to a network use case and an energy use. The test run would inform refinements to the framework before testing it more widely
 - A second workshop involving more people would be scheduled once the framework is refined.
 - The Action Plan should flag undertaking user and customer journey mapping to refine and improve the framework.

Item 4: Workplan, engagement and communications planning

The group discussed workplan progress and stakeholder engagement.

- the group agreed to try to complete workshops by end-July
- the group agreed to share details about FlexForum related stakeholder conversations to assist a coordinated engagement approach
- the group agreed to consider timing of an outcomes webinar at the next session taking account of progress of the action plan and next steps
- the group noted the opportunity to present its work at the SEANZ conference in August.

5: Administration – governance, budget, and funding

The group noted an update on the budget.

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