

FlexForum session VII 28-04-22 notes

When	0900 – 1200, Thursday 28 April 2022
Where	Virtual
Who	Shay Brazier (ReVolve Energy), John Campbell (Our Energy), Jason Christini-Crawford (Electricity) [apology], Glenn Coates (Aurora), Jenny Van der Merwe (Kāinga Ora), Terry Paddy (Cortexo), Eric Pyle (solarZero), Buddhika Rajapakse (Mercury), Tom Rose, (EVNex), Scott Scrimgeour (Wellington Electricity), Quintin Tahau (Transpower), James Tipping (Vector), Evie Trolove, (Orion), Glen Baxter (Ara Ake), Fiona Wiseman (Manawa) Matt Copland, Mark Herring, Murray Henderson (Transpower) Facilitator: Geoff Sharples Secretariat: Craig Evans, Matt Smith

Session notes

Four topics were discussed:

1. Practical requirements for transacting flexibility (workplan topic C) – two presentations
 - a. South Island Distributor Group draft roadmap
 - b. System Operator perspective on the role of DER and flexibility in the future security and resilience of the power system
2. Workplan, engagement and communications planning
3. Webinar arrangements
4. Administration – governance, budget, and funding

Agenda overview

The group agreed the agenda after reviewing the workplan and actions from previous sessions.

Item 1: South Island Distributor Group draft roadmap to implement

Glenn Coates presented the South Island Distributor Group draft roadmap. The SIDG expects to decide whether to implement the roadmap in late May.

The purpose of the roadmap is for distributors to identify and develop the operational and planning capability and practices which will be required to operate a distribution network with significant levels of distributed energy resources (DER).

The draft roadmap is premised on the evolution of operation of distribution networks through three models: utility led management of network use; market led management and price led management. Flexibility is expected to play a larger role in network operation under the market and price led models. Utility led management of flexibility is expected to fall away over time.

- Phase 1 of the roadmap would involve activities to define the benefits of investing in capability required to support market-led and price-led network operation and planning.
- Phase 2 would involve activities to identify what new systems and capability are required and the costs of obtaining that capability.
- Phase 3 would involve implementation if benefits outweigh the costs.

South Island distributors plan to begin determining need cases and practical requirements through learning by doing. Current thinking is to begin with tenders for predictive congestion management services and putting in place dynamic connection contracts / dynamic operating envelopes (DOEs¹).

The SIDG considers that the utility led approach prevents value stacking by DER. One implication of this is that the evolution of operational requirements will need to include distributors transitioning away from relying on direct control of household hot water (ie, ripple control).

The demand adjustment capability of hot water is currently under-used due to conflicting incentives. Access to the flexibility of individual customers will unlock and maximise value, particularly as a resource to be used alongside financial risk management tools.

¹ Note, Dynamic operating envelopes are a more sophisticated way for distributors to allocate to customers access to network capacity than the traditional approach of allocating a notional fixed amount of capacity to each connection (eg, based on ADMD). Dynamic operating envelopes vary import and export limits over time and location based on the available capacity of the local network or power system as a whole. More information is available in this Outcomes report by the Dynamic operating envelopes working group of the Distributed energy integration program: <https://arena.gov.au/assets/2022/03/dynamic-operating-envelope-working-group-outcomes-report.pdf>

Feedback received through developing the roadmap includes:

- the importance of focusing on the practical requirements so people know what actions need to be taken and avoid mystery
- collaboration is essential – no one party can achieve the transition on their own
- value stacking is important
- standardisation of approach will be required, eg of communication protocols

The group reflected that the proliferation of DER will change the operating environment across the electricity supply chain, with the change initially affecting distributors and later transmission, and system operation and generators/retailers.

Distributors currently have a problem to deal with; but other parts of the supply chain don't face similar urgency to do something. This is a problem because the value to the distributor or transmission network owner alone doesn't appear sufficient to make the business case for flexibility, requiring a cross-value chain approach and value stacking, with everyone involved in developing the new tools (ie, flexibility) required to deal with the changing environment.

Early action is needed from across the supply chain to develop and refine the tools, even if business case is hard now.

The group noted that the UK approach initially was to run small tests and trials, yet NZ appears to be requesting larger quantities of flexibility (many MW) as they are targeting deferral of large capacity increments. This creates a barrier for potential suppliers as they don't yet have the scale to provide sufficient liquidity and depth to deliver upfront the requested amounts. Experience suggests the minimum size for flexibility can be quite low. UK distributors reduced the participation threshold to 10 kw and got a good response. Transpower removed the size limit for its demand response programmes, ending up with well over 200MW registered and active.

The situation was described as a classic "if you build it they will come" conundrum with build costs ahead of return but no-one party with the responsibility to develop the resource for collective gains.

Things to consider:

- distributors don't have sufficient data to predict congestion management needs with sufficient confidence – this needs further testing
- problems being faced today (by distributors and other part of the supply chain) will be different to those in the future
- technical requirements need to be fit-for-purpose and reflect what DER can do rather than fit around the existing system architectures

- get the right counterfactual for traditional solutions, eg, flexibility may not quite provide an N-1 outcome but it will deliver improved resilience. Can we agree on methodologies or procedures that work for the industry as a whole?

The group asked for a follow-up discussion on the interaction between the FlexForum scope and the SIDG roadmap.

Item 2: System Operator perspective on the role of DER and flexibility in the future security and resilience of the power system

Matt Copland and Mark Herring, both with the System Operator, spoke to the group about:

- coordinating operation of transmission and distribution networks and the wholesale market with increasing uptake of DER
- experience from the United Kingdom.

Coordination will be important for:

- maintaining an accurate forecast. The System Operator will want information about the behaviour and actions of parties that can impact the demand/supply balance to
 - enable certainty about bids and offers
 - forecast and manage shortfalls (in generation)
- coordinating operation of the power system
 - voltage will need to be managed for the whole power system. Transmission and distribution networks are connected and physics doesn't respect operational boundaries – need to avoid conflict in decisions and actions
 - availability of services if called upon and interaction with existing obligations eg, AUFLS. The System Operator will want information about whether an action conflicts with another action or obligation
- performance of DER during faults, and particularly visibility of DER performance post event. The System Operator will need to identify and manage any additional risk of under performance of the system, eg, Australian type impacts on price/system due to performance of DER (fault ride-through)
 - the level of visibility and observability will likely be no more than what distributors and other market participants will require. The System Operator is likely to aggregate and model conditions at the GXP/GIP level, with a qualification on the size of DER, to understand the impact/effect on transmission grid physical conditions and the wholesale price.

The United Kingdom system operator is further advanced in understanding its role in a high DER world. Experience in the UK was that the technical solution is the (relatively) easy part. Building new products, services and processes across a diverse range of stakeholders in a highly regulated and risk averse sector is challenging

- Carefully consider the tradeoff between building broad support and making tangible progress
 - the System Operator needs to be involved early to avoid problems and extra cost later, even if the System Operator doesn't have an immediate need or concern relating to DER and flexibility (because the opportunity/challenge is more urgent at Dx than Tx)
 - the regulator needs to be kept informed and involved – projects need to inform regulatory change
 - market participants should expect a coordinated and consistent approach across the country
- Involve stakeholders in shaping the problems, not just the solutions, using a two-speed process
 - Deliver quick tangible outputs by learning by doing to build evidence for (slower paced) regulatory change processes
 - Use whole system thinking to connect the details and each workstreams to the overarching strategy and outcome – each activity should clearly show 'why is this being done and where is it going'. Try hard to identify opportunities to multi-solve issues, and don't dismiss the opportunities of fundamental (versus incremental) change. An example in the UK was a government decision to presume open data, which avoided detailed investigation of what data to make available
- Frame **everything** in terms of benefit to end consumers. A unifying objective is key in creating cohesion and enable unconstrained thinking for a diverse range of stakeholders forging new pathways

Item 3: Workplan, engagement and communications planning

The group reviewed the workplan and upcoming topics and issues, agreeing the list of issues provided a reasonable scope.

The group requested further development of the interactions map (available on the webpage) to describe in more detail the different workstreams and how the overlap or are complementary.

The group agreed to work up a template for the key commercial requirements based on the example.

4: Webinar arrangements

The group discussed the webinar arrangements, noting there had been 74 registrations.

5: Administration – governance, budget, and funding

The group heard an update on governance, budget and funding.

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