

FlexForum session X 09-06-22 notes

When	0750 – 1200, Thursday 9 June 2022
Where	Virtual
Who	<p>Glen Baxter (Ara Ake), Shay Brazier (ReVolve Energy), John Campbell (Our Energy), Jason Christini-Crawford (Ecotricity), Glenn Coates (Aurora), Jenny Van der Merwe (Kāinga Ora), Terry Paddy (Cortexo), Eric Pyle (solarZero), Buddhika Rajapakse (Mercury)[apology], Tom Rose, (evnex), Scott Scrimgeour (Wellington Electricity)[apology], Quintin Tahau (Transpower)[apology], James Tipping (Vector), Evie Trolove, (Orion), Mike Ullrich (Influx), Fiona Wiseman (Manawa),</p> <p>Guests: Nicole Kirkham & John McCabe, MBIE, Nathan Spence, Electricity Authority, Stathis Mokkas, UK Power Networks, Mary Ann Mitchell, Chris Fincham, Independent Electricity Generators Association</p> <p>Facilitator: Geoff Sharples</p> <p>Secretariat: Craig Evans, Matt Smith</p>

Session notes

Five items were discussed:

1. A distributor perspective on using flexibility from UK Power Networks
2. Valuing and rewarding flexibility
3. Scoping the action plan and next steps
4. Workplan, engagement and communications planning
5. Administration – governance, budget, and funding

Agenda overview

The group agreed the agenda.

Item 1: A distributor perspective on using flexibility

The group heard a perspective from Efstathios Mokkas, Energy Markets Lead, UK Power Networks, on a distributor journey to using flexibility.

Stathis gave an overview of UKPN and how it thinks about flexibility.

Flexibility cannot happen in a day. The flexibility journey in Great Britain has occurred in stages:

- distributors started testing the capability of flexibility resources around 2011 with support of innovation funding allowed by the regulator
- UKPN along with the other GB network operators gave a formal [Flexibility Commitment](#) in 2018, including a commitment to open up requirements for building significant new electricity network infrastructure to include smart flexibility service markets as part of day-to-day operations and to openly test the market to compare relevant reinforcement and market flexibility solutions for all new projects of any significant value. the Flexibility Commitment was followed in 2019 with a commitment to [six steps for delivering flexibility services](#)
 - champion a level playing field
 - ensure visibility and accessibility
 - conduct procurement in an open and transparent manner
 - provide clarity on the dispatch of services
 - provide regular, consistent and transparent reporting
 - work together towards whole energy system outcomes.
- In 2022, after seven rounds of flexibility tenders (ie, 2018 to 2022), UKPN is moving from testing to using flexibility as part of day-to-day operations. **The flexibility journey requires multiple iterations and persistence.** The journey should be easier for those starting now due to advances in DER

Insights from the UKPN journey are:

- make the problem as clear and simple as possible by clearly defining the need. This helps people understand what they are being asked to do
- Experience has providing UKPN with the confidence to include flexibility as an option for real time network operation. UKPN expects to save about £400 million over the 2015-2023 price control period by using flexibility.¹
- The flexibility first approach, and working on enhancing opportunities for flexibility providers, persistent market testing and neutrality, provides the pathway for developing the capability to be a distribution system operator.

¹ UKPN forecast total expenditure of £7,249 million in the period 2015-2023 (2020-21 prices). Refer [UKPN RIIO ED1 Business Plan Commitments Report 2020-2021](#), page 30

- Ongoing dialogue is required between the flexibility buyer and providers. Several rounds of flexibility tenders were required to build liquidity. Providers needed to be confident UKPN was serious and committed to flexibility, and to become involved and excited about the opportunities. Don't assume the providers are ready and waiting
- Listen to flexibility providers. They need to be directly involved in developing the flexibility product. There will be different views and expectations from providers which are important for informing the development of practice
- Internal engagement is as important as external engagement. Using flexibility requires a cross organisation effort – people from procurement, infrastructure, legal etc – to ensure the whole organisation is committed and telling the same story. The commitment to flexibility by UKPN comes from the Board
- Enablers of success include:
 - a supportive regulator and regulatory framework. Regulatory involvement included defining what a DSO looks like – this is important because it is hard for people to understand what a DSO is and does
 - provide visibility to allow visualising of flexibility. UKPN did this through Piclo
- Decision-making tools to determine whether to use flexibility or another solution relied on assessing the net present value of using flexibility – this provides the ceiling or budget available for flexibility, eg, the NPV of a £10M investment might provide an allowance of £400,000 a year over 10 years.
 - the cost-benefit analysis tool has become more sophisticated over time, including line losses, CO2 reductions etc
 - the CBA methodology is standardised and publicly available
- the regulatory framework does not favour or discourage use of flexibility. Distributors return 50% of underspend to consumers making distributors neutral on the choice between flexibility v traditional solutions
- flexibility is typically used to defer rather than avoid capital expenditure. The deferral period has lengthened with experience. Deferral periods initially were about initially about two years but can now extend out to seven years. Uncertainty is managed using a portfolio of flexibility products, with more dynamic products available to maintain security and reliability outside the flexibility window
 - have not yet used the unplanned outage product as it has been difficult to align resources and need given existing capabilities

- Results of each flexibility tender round are published including tenderer, amount bid, and whether the bid was accepted.^{2,3} Publishing tender results supports market development by assisting with price discovery and formation. It is the responsibility of the distributor to determine if proposals/options represent value for money (are efficient).
 - UKPN (and other distributors) also publish price ranges (ie, what it is prepared to pay for flexibility) as part of the tender process. This transparency supports the price formation process, including by highlighting the potentially significant difference across geographical or network areas in what UKPN is willing to pay
 - UKPN decided early on to be as transparent as possible, and ahead of regulatory requirements to do so. There was an initial hesitancy about transparency, however experience highlighted the value of providing information to establish a learning loop for both UKPN and providers
- UKPN procures flexibility across the HV, MV and LV parts of its network. Flexibility will become increasingly important for management of the LV network as network conditions evolve (ie, electrification). However, it initially focused on the HV and MV network because providers initially found it easier to deliver flexibility across larger regions of the network
- UKPN has not been fussy about its data sources. Smart meter data is useful but is not the sole data source. With a focus on flexibility at the HV and MV network levels, UKPN uses data measured at the substation and by flexibility providers.
- The minimum forecasting capability is to identify annually the forecast capacity shortfalls for each area across the network. UKPN systems have evolved and use more data and provide a more granular picture. Bottom up scenarios are used to inform forecasts and bridge the gap between System Operator scenarios
- There are several safeguards against a flexibility solution not working as expected.
 1. A portfolio of flexibility products;
 2. Not leaving things too late to provide an opportunity for repeat tenders;
 - and 3. Recognising that flexibility typically defers, rather than avoid upgrades.
 - underlying these safeguards is the commitment to develop the market ahead of time, not just in time, to provide liquidity and a range of options (flexible and traditional)
- it is critical that the network operator have good relationships with the System Operator and DSO – signals need to be complementary.

² For example, here is the post tender report [UKPN Post tender report for the February 2021 procurement round](#)

³ [Flexibility figures across Great Britain as of July 2021](#) are regularly published by the ENA

Item 2: Valuing and rewarding flexibility

The group discussed valuing and rewarding flexibility, first hearing three perspectives:

- Chris Fincham and Mary Ann Mitchell outlined the capability and experience of commercial-scale distributed generation
- Jason Christini-Crawford outlined thinking on the value opportunities which exist or will need to exist to enable customer participation (and realising value of flexibility)
- Evie Trolove and James Tipping outlined thinking on the commercial mechanisms available to distributors, and how those mechanisms might value and reward flexibility.

Key points from the discussion were:

- DG has the capability to provide a range of services. For example, it reduces peak demand volumes on the transmission grid. It can be contracted and respond to price signals with a firm response. A key concern is alignment between network and wholesale price signals
- Market participants – traders and intermediaries – are likely to go through three phases in realising the value of flexibility
 - Phase 1. Using existing price mechanisms to realise value from flexibility in areas directly/internally controlled, for example wholesale trading and risk management, customer churn/acquisition and carbon reduction
 - Phase 2. Looking to realise value from flexibility using distribution charging structures, eg, ToU structures
 - Phase 3. Looking to realise value in more advanced areas, ie, new revenue streams based on flexibility
- From an end-customer point of view value will be easier to realise:
 - if it is easy. Opportunities need to be set and forget to enable scale
 - financial incentives can be relied on
 - contract terms (for bilateral contracts) are fair and consistent
 - if there is equal (neutral) access to market opportunities
- There are three commercial mechanisms used by / available to distributors to value and reward flexibility. A portfolio approach combining the three mechanisms is expected.
 - Connection charges – connection assets can be right-sized (ie, costs reduced) if the customer designs in flexibility

- Distribution pricing is expected to encourage price-based flexibility by signaling the economic cost of using the network at that time and location
- Payments made to contracted flexibility for providing a specified service.
- Work done to date indicates a wide range of values for flexibility between distributors and between areas/locations. Variables which influence the value for flexibility include: the cost of the traditional solution being deferred; time value of money; capital contributions policy; and confidence in the load growth forecast
- There will not be a standard price or value for flexibility as highlighted by the UKPN presentation, it varies depending on the specific location and investment being deferred. Ideally there will be a standard method for calculating value. The next step is to develop estimated value ranges based on some real world examples.
- One perspective is distribution pricing can provide a baseline signal of efficient network use, with contracted flexibility to encourage specific action. It will be important to establish signals which provide network users with good information about the benefits and costs of using the network – for import and export – at a particular time and location.
 - Using distribution charges to provide specific and efficient locational and temporal signals may not be practicable, particularly for equity and acceptability reasons. Experience indicates volatile pricing must be accompanied by tools to assist with management of that price volatility – not all households and businesses will have the ability to respond to sharp distribution price signals.
 - Given this, the preferred approach may be to include a small uplift in distribution charges to reflect the cost of procuring flexibility in specific locations
- For distributors in NZ, flexibility is viewed as an operating expense and needs to be funded within the opex allowance of each distributor. There is an ongoing discussion with the Commerce Commission about the ability to transfer between capex and opex allowances. The incentive scheme currently in place in Aotearoa doesn't allow a totex approach.
- The key is to make a start testing how to apply the three mechanisms. Experience from elsewhere is relevant. Sources include:
 - <https://smarter.energynetworks.org/> and [https://www.energynetworks.org/industry-hub/resource-library/on21-prj-end-of-year-review-\(17-feb-2022\).pdf](https://www.energynetworks.org/industry-hub/resource-library/on21-prj-end-of-year-review-(17-feb-2022).pdf)

The group discussed whether the type of DER might matter to a flexibility user versus the capability to deliver the nominated service, concluding the type of DER might matter if it affected the level of risk the buyer exposed to.

The group also discussed the interaction between physical network limits and commercial mechanisms, focusing on the potential role of dynamic operating envelopes (DOEs).⁴ A key risk raised was the potential for DOEs to be viewed as a way for distributors to reach in to control DER without regard to the wishes of the owner.

- The purpose of DOEs is to increase access by customers to available network capacity
- DOEs are intended to reflect the physical limits of the network to enable optimal use of available network capacity over time. A key question is how distributors manage when parts of the network reach these physical limits and the choice between controlling network use, using flexibility and upgrading capacity.
- Clarity in this area will help build confidence in how networks will be operated and designed into the future, thereby providing DER owners with greater confidence about investment decisions

Item 3: Scoping the action plan and next steps

The group discussed the scope of an action plan and next steps for transacting flexibility, considering what, who and how.

The group requested development of an action plan which details the main workstreams and actions required to further develop common and standard arrangements for transacting flexibility:

- describing a minimum viable product to provide the basis for projects to inform the further development of common and standard arrangements for transacting flexibility
- identifying specific research questions which need to be tested through actual and desktop projects undertaken by FlexForum members and others
- listing any barriers which are known to, or may, get in the way of transacting flexibility.

The group expects the action plan will probably include the workstreams outlines in the 'blue tile diagram' (refer page 11 pre-reading). The workstreams are expected to reflect a two-speed process with long-term actions, eg, regulatory change, and short-term actions, eg, immediate steps and testing.

The group reflected that the action plan must provide a balance between conceptual policy development and practical testing.

⁴ The FlexForum is developing material on the purpose and potential use cases of dynamic operating envelopes in Aotearoa

The group concluded that the action plan is a starting point, but that testing needs to start now in parallel with the considerable further effort required over several years, eg, improvement in forecasting capability, development of a common evaluation methodology (for distributors), and the operational and planning-related actions outlined in the South Island distributor group roadmap.

A key element of the action plan must be testing concepts and practice through real projects.

- projects may be actual or desktop-based to demonstrate aspects of the minimum viable product, eg, product definitions. Valuable insights can be obtained during each phase of a project, providing opportunities to test thinking at the scoping stage as well as the delivery stage
- projects take time to scope and start, however existing or completed activities and projects could provide a basis for assessing how FlexForum thinking could be applied
- a collaborative and near enough approach should be explored to provide options for low cost experimentation and learning.

Members discussed projects they have underway or are contemplating which could provide test beds for FlexForum ideas. The group noted projects do not need to be commercial scale.

Specific actions to include in the action plan:

- A process/system to make visible the flexibility needs and flexibility resources available (eg, Piclo), to encourage learning and trust
- Communications standards/protocols
- Improved processes, eg, improvements to distributor connection processes which support flexibility investments through information provision
- Education around current incentives and opportunities, eg, opportunity to reduce lines capex and opex through building flex technology.

The action plan should also list the barriers to action to make these visible and to reflect the relative impact (and importance).

The group observed that the action plan needs broad buy-in, with support from industry, plus MBIE and regulatory agencies, and a co-ordinated approach to development and delivery. The group agreed it will be necessary to have clear accountability for the action plan, noting in Great Britain the ENA manages aspects of the 'action plan' but is accountable to the regulator and government.

The group noted the action plan will need to coordinate with work of MBIE, EA, EECA and Commerce Commission, and more broadly with the South Island distributor group

and others. Given the range of interests and active parties, a shared roadmap and action plan is desirable.

Item 4: Workplan, engagement and communications planning

The group noted the progress with workplan tasks outlined in the pre-reading (see page 10).

The group agreed to provide feedback to Standards NZ and EECA on the draft publicly available specification for Smart Homes focusing on:

- terminology – the draft PAS proposes terms not aligned with the common language emerging from the UK, IPAG and FlexForum glossaries
- the Smart Home value drivers and opportunities are described without accounting for commercial propositions and the practical use cases of the DER in a Smart Home. The FlexForum discussions have highlighted the existing gap between capability of DER and ability to monetise that capability.

5: Administration – governance, budget, and funding

The group noted an update on the budget.

The group noted Randolph Brazier, Director of Innovation, ENA is scheduled to speak to the group on 23 June in the evening. The group agreed to invite stakeholders.

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