

Session VII

FLEXFORUM | 

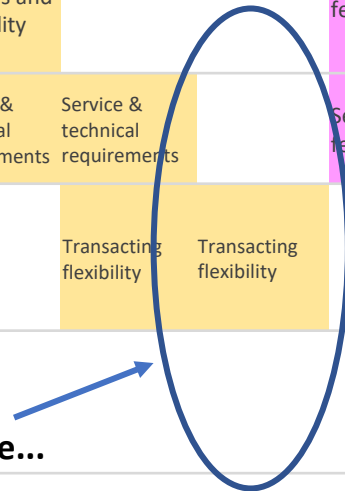
Pre-reading for 28 April 2022 session

Shared 26 April 2022

Workplan on a page – progress at 28 April 2022

| | Meeting 0 (17-12) | 1 (03-02) | 2 (17-02) | 3 (03-03) | 4 (17-03) | 5 (31-03) | 6 (14-04) | 7 (28-04) | 4-05 | 8 (12-05) | 9 (26-05) | | 10 (09-06) | 23-06 | |
|-------------------------------------------------------------------------------|-------------------|----------------------|---------------------|---------------|----------------------------|----------------------------------|----------------------------------|-------------------------|---------------------|-------------------------|---------------|------------------|----------------------|----------------------|---------------|
| Topic | Dec | Feb | | March | | | April | | May | | | June | | | |
| Governance | Draft TOR | Agree TOR and budget | | | | | Mid point review | | | | | | Establish next steps | Wrap up | |
| Engagement | | | Stakeholder mapping | | | | Webinar prep | | Webinar | | Webinar prep | Webinar | Event prep | Dissemination event | |
| A. Flexibility needs <i>What and why (drivers)</i> | | | | DER potential | Network & Market potential | Value streams and capability | | | Seek feedback | Address feedback | | | | | |
| B. Product definitions <i>What and how (technical requirements)</i> | | | | | Need cases | Service & technical requirements | Service & technical requirements | | Seek feedback | Address feedback | | | | | |
| C. Market access and participation <i>Who and how (commercial)</i> | | | | | | | Transacting flexibility | Transacting flexibility | | Transacting flexibility | | Seek feedback | Address feedback | | |
| D. Market opportunities <i>Where and for how much</i> | | | | | | | | | Valuing flexibility | Valuing flexibility | Seek feedback | Address feedback | | | |
| E. Practical, scalable and least-regret steps <i>Implementation</i> | | | | | | | | | | | | | Finalise outputs | Implementation | Seek feedback |
| F. Support ongoing learning and collaboration | | | | | | | | | | | | | | Establish next steps | |

We are here...



Session overview – topics and decisions

Five items

1. South Island Distribution Group draft roadmap
 - a) For discussion. Presentation from Glenn Coates
2. System operator and transmission network perspective on DER and flexibility
 - a) For discussion. Presentation from Transpower
3. Workplan, engagement and communications
 - a) Review workplan process, direction of travel and expected outputs
4. Webinar arrangements
 - a) Update
5. Administration – governance, budget and funding
 - a) Update

South Island distribution group – draft roadmap

The South Island Distribution Group is seeking feedback on a draft roadmap to evolve distribution operational and planning capability and practices to integrate DER

Glenn Coates to present on draft roadmap











System operator and transmission network perspective on DER and flexibility

Table 7 – FSR dashboard

The System Operator said in its Future security and resilience report that there needs to be:

- clear expectations between the System Operator, electricity distribution businesses (EDBs) and flexibility traders on services delivered by DER
- visibility of DER at both transmission and distribution levels
- up-to-date technical requirements considering how DER operates, in order to support security and resilience, e.g. whether installed inverters should be grid forming rather than following (see Section 10.6 for more information on this challenge)
- Incentives for consumers to use smart EV chargers that can be programmed to charge at a specific time and avoid increasing peak loads.

Matt Copland & Mark Herring to present on Tx & DX coordination, SO flexibility needs and insights from the UK

| Opportunities and challenges | Timeframe | Priority |
|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------|
|  Enabling DER services for efficient power system operations | 3-7 years | ● Medium |
|  Visibility and observability of DER | 3-7 years | ● Medium |
|  Coordination of increased connections | 0-3 years | ● High |
|  Balancing renewable generation | 3-7 years | ● Low |
|  Managing reducing system inertia | 7-10 years + | ● Low |
|  Operating with low system strength | 3-7 years | ● Medium |
|  Accommodating future changes within technical requirements | 0-3 years | ● High |
|  Leveraging new technology to enhance ancillary services | Enduring | ● Medium |
|  Maintaining cyber security | Enduring | ● High |
|  Growing skills and capabilities of the workforce | Enduring | ● High |

● Rise of Distributed Energy Resources
 ● Changing generation portfolio
 ● Foundational opportunities and challenges

Workplan progress, direction of travel & outputs

Page 8 (next) outlines the key issues being addressed in topics B – E and shows the relationship between the topics and issues

- topics A & B – draft outputs are done
- topic C – initial discussions held on communication & connectivity (last session), Tx/Dx coordination and investment information (this session). Discussions with Octopus (UK), Piclo and a UK distributor on remaining issues being arranged for early May

Pages 9 and 10 describes a proposed output from topic C

Page 11 gives an overview of the outputs of topics A to E and how these might be used

Five main services and three types of response to network, system & market conditions

Peak shifting to obtain...

- Portfolio optimisation
- Predictive congestion management
- Generation capacity adequacy

Demand adjustment to obtain...

- Portfolio optimisation
- Corrective congestion management
- Generation capacity adequacy
- Balancing

Generation adjustment to obtain...

- Portfolio optimisation
- Corrective congestion management
- Balancing

Characteristics of service

- Shift load
- Shed load
- Shimmy load (up or down) over short timescales
- Shape load (up or down) routinely over long timescales

Planning & operational criteria of service

- Detection & location
- Procurement & deployment timeframe
- Lifespan
- Speed & duration of response

Technical (topic B)

Exchange (procurement) mechanism

- Price flexibility (indirect)
- Contracted flexibility (direct via buyer or platform)

Services used to respond to a need

- standard specification (ie, the technical characteristics and criteria)

Counterparties

- who are the contracting parties
- who operates the exchange mechanism

Payment & compensation

- How is value calculated
- How is value signposted

Workplan topic D

Terms of trade

- Conditions on participation, eg registration
- Liability & non-performance
- Option to deliver

Commercial (topic C and D)

Communication & connectivity

- Sending & receiving instructions requesting delivery (type & timing)
- Performance & measurement of delivery

Coordination

- Tx & Dx interface
- Wholesale market

Operational (topic C)

Investment information

- Planning information. Actual or forecast demand for a need & response
- Signalling information. Timing and location of need & response

Planning (Topic D)

Customer proposition

- Factors enabling or blocking creation of attractive and effective propositions for transacting flexibility

Implementation (topic E)

This list of issues should align with the output of topic A

Linking technical requirements (B) to commercial products and transacting flexibility (C)

Technical requirements (B) for each service

- Peak shifting
 - Predictive congestion management
 - Portfolio optimisation
 - Generation capacity adequacy
- Demand adjustment
 - Portfolio optimisation
 - Corrective congestion management
 - Generation capacity adequacy
 - Balancing
- Generation adjustment
 - Corrective congestion management
 - Balancing

Commercial products (C)

Each commercial product listed to be defined using template on next slide

| Buyer | Exchange mechanism | Outcomes and products |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Who needs the flexibility | What is the exchange mechanism | What outcomes are sought with what products? |
| EBD | Distribution pricing, eg, <ul style="list-style-type: none"> • ToU charges • Export credits (Orion) | Profile shaping using Predictive congestion management; Generation capacity adequacy |
| EDB | Connection arrangements, eg, <ul style="list-style-type: none"> • Non-firm connections • Timed/profiled connections | Profile shaping using Predictive congestion management; Generation capacity adequacy |
| EDB/DSO | Local flexibility procurement | To be defined but examples include products related to: <ul style="list-style-type: none"> • Reinforcement deferral using Predictive congestion management • Planned maintenance outage management using Generation capacity adequacy • Unplanned outage avoidance/reduction using Generation capacity adequacy; Corrective congestion management |
| System Operator | Wholesale Market | ... |
| System Operator | Ancillary services procurement | ... |
| Consumer | | ... |

A possible template for commercial product descriptions

Template to be populated for each commercial product identified

| Category | Parameter | Definition |
|-------------------------------------|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Commercial | Product Name | |
| | Product description | |
| | Buyer | |
| | Exchange mechanism | |
| | Value exchange method | <i>How is payment or compensation calculated</i> |
| | Price determination | <i>How is payment or compensation calculated</i> |
| | Maturity | <i>How mature is the market product or service?</i> |
| | Timing of procurement | |
| | Contract term | <i>If applicable</i> |
| Technical requirements | As per technical requirements [topic B] | |
| Detailed operational specifications | Minimum Flexible Capacity | The minimum Flexible Capacity a Flexibility Provider may make Available. This can be made up of Aggregated or Non-Aggregated DER's. |
| | Minimum Utilisation | The minimum amount of time a DNO will require the provision of a Flexibility Service from a Flexibility Provider, following a Utilisation Instruction. |
| | Minimum Utilisation Duration Capability | The minimum amount of time a Flexibility Provider must be able continually hold their Contacted Flexible Capacity, in minutes. |
| | Maximum Ramping Period | The maximum allowed time, once a Utilisation Instruction has been issued or becomes active, for a Flexibility Provider to reach their Contracted Flexible Capacity. |
| | Availability Agreement Period | The time period before a Flexibility Service is required by a DNO, in which the DNO and Flexibility Provider may agree the Flexibility Provider's Availability Window. |
| | Utilisation Instruction Notification Period | The time period before a Flexibility Service is required by a DNO, in which a DNO may issue a Utilisation Instruction to a Flexibility Provider for the provision of a Flexibility Service. |
| | Dispatch method | |
| Metering method | | |

These parameters and definitions are based on the UK Open Networks flexibility product parameters
 Source: <https://www.energynetworks.org/industry-hub/resource-library/open-networks-2020-ws1a-p3-final-implementation-plan.pdf>

Outputs - what do we get out of this? How could it be used?

| | Output | How will it be used |
|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A. Discovering flexibility needs What buyers and sellers need for transacting flexibility | <ul style="list-style-type: none"> • A description of the reasons or needs for flexibility across the supply chain • A list of information & processes that sellers need to be able to offer flexibility • A list of processes and practices buyers need to develop to enable the exchange of flexibility | <p>The outputs of topic A inform the scope of topics B – E</p> <p>The list of information & processes needed by sellers & the list of processes and practices that buyers need to develop provide the checklist for the practical, scalable and least-regret steps</p> |
| B. Defining services & technical requirements <i>What and how (technical requirements)</i> | <ul style="list-style-type: none"> • Classification of the services that buyers want and could be delivered using flexibility • A description of the technical information for each service that sellers need from buyers to be able to offer flexibility | <p>Inform development of a detailed technical specification for each service and outcome</p> <ul style="list-style-type: none"> • Buyers should make the information in the template available to sellers. <i>Q: What is the most useful way of making this information available?</i> • Buyers and sellers should collaborate to refine the information with the goal of having a common technical specification for each service and outcome. <i>Q: Is the set of information complete? What extra detail is required to provide a detailed technical specification?</i> |
| C. Transacting flexibility <i>Who and how (commercial requirements)</i> | <ul style="list-style-type: none"> • Model commercial requirements for each service: the counterparties, the exchange mechanism (price or contract), and terms of trade • Model operational requirements for each service: communication & connectivity, system and market coordination | <p>Inform development of common commercial and operational practices</p> <ul style="list-style-type: none"> • Buyers and sellers should use the model commercial requirements, publicising improvements made through experience. <i>Q: is the model a useful basis for commercial negotiations? What departures from the model are reasonable?</i> • Buyers should adopt common communication & connectivity protocols (eg, those developed through the openADR project). <i>Q: what testing of communication & connectivity is needed? What are the risks of a Betamax v VHS situation?</i> • Tx and DX coordination capability and practices should be developed to support integration of DER and use of flexibility. <i>Q: ...</i> |
| D. Valuing flexibility <i>Where and for how much</i> | <ul style="list-style-type: none"> • Principles for when to use price flexibility or contracted flexibility • Principles for setting value ranges for flexibility • A description of the planning and signaling information buyers need to provide sellers | <p>Inform development of price ranges for when procuring flexibility</p> <ul style="list-style-type: none"> • Network owners to set levels of variable network charges based on the value of price flexibility. <i>Q: what is the most efficient use of price flexibility? What tradeoffs exist in setting charges?</i> • Network owners to provide price ranges when procuring contracted flexibility (ie, the UK approach). <i>What is the most efficient use of contracted flexibility?</i> • Buyers to make available planning and signaling information needed by sellers. <i>Q: What is the most useful way of making this information available?</i> |
| E. Implementation: practical, scalable and least-regret steps | A list of actions for delivering outputs B-D | Making changes to operating practices in delivering projects |

Webinar arrangements – update

Webinar agenda

- Welcome [James Tipping]
- FlexForum origin story, goal and purpose [Terry], approach and process [Craig]
- DER perspective [Shay]
- Network & market perspective [Evie]
- Questions, how to provide input and next steps [Craig]

Webinar – scheduled for Wednesday 4 May 1400-1515

- 63 registrations at 26-04-22

Getting feedback

- Written responses via webpage and email to info@flexforum.nz
- targeted webinars with key stakeholder groups by arrangement
- 1-1 sessions by arrangement

Administration – governance, budget & funding

- Update