

Power Responsive Flexibility Forum

27th September 2017 - Summary

- *The Power Responsive Flexibility Forum took place on Wednesday 27th September 2017 at the County Hall London.*

This document provides a summary of the first Power Responsive Flexibility Forum. The forum's emergence has developed from an amalgamation of the DSR Provider Group and the Storage Working Group as these two forms of technology for flexibility provision are largely complementary to one another.

The objective of the forum is to provide a working level platform from which flexibility stakeholders and interested parties can;

- a) hear the latest updates from across the industry, and;
- b) contribute / input into industry and market developments.

Overview

The forum saw morning updates from BEIS (Department of Business, Energy & Industrial Strategy) & Ofgem on the publication of the Smart Systems and Flexibility Plan, whilst National Grid updated delegates on the developments from the FRSO (Future Role of the System Operator) programme.

Afternoon breakout sessions gave delegates the opportunity to hear from and feedback on:

- a) National Grid's Product Simplification Roadmap
- b) ENA Commercial Principles Paper
- c) Code Modifications and Access to the Balancing Mechanism

Feedback collected from participants during breakout sessions and round table discussions can be found in the appendix to this summary and will help to form the future flexibility work programmes across the industry.

Welcome and Introduction

Claire Spedding welcomed delegates and introduced herself as the Head of Business Development at National Grid. The agenda for the day was introduced, and delegates encouraged to ask as many questions as possible whether from the floor or through the Slido platform provided.

Agenda:

Session 1: Industry Update – BEIS, Ofgem, National Grid

Sessions 2, 3 & 4 – Breakouts:

- a) Product Simplification Roadmap
- b) ENA Commercial Principles Paper
- c) Code Modifications and Access to the Balancing Mechanism

The Power Responsive Flexibility Forum and its evolution from the DSR Provider Group and Electricity Storage Working Group was introduced. National Grid sees DSR (Demand Side Response) and Electricity Storage as two complementary technologies in the provision of flexibility and therefore inviting stakeholders from both sectors is felt appropriate as discussions around 'Flexibility' are pertinent to all.

Session 1 – Industry Update

Upgrading Our Energy System: Smart Systems and Flexibility Plan

Russell Jenkins, Senior Policy Advisor, Smart Energy, BEIS

The need for a fundamental shift to an energy system with greater flexibility was introduced, highlighting progression from a linear system to one with greater interactions. A low carbon agenda and rapid technology advancements are driving new and exciting business opportunities, and entrants into the electricity sector, as seen via;

- a) The cost of Lithium-ion battery technology has fallen more than 50% since 2010.
- b) Smart meter roll-out will engage and empower the end consumer.
- c) Electric vehicles (EVs) and associated infrastructure are under development, and can help to manage increased demand on the electricity system
- d) Aggregators are helping to enable an increasingly flexible energy system, opening opportunities for Industrial & Commercial (I&C) energy consumers to reduce ~~to~~ costs and release revenue opportunities.

The first Power Responsive Flexibility Forum was the first chance for Power Responsive stakeholders to hear directly from BEIS and Ofgem since the publication of their **Smart Systems and Flexibility Plan**. The plan highlights how the Government and Ofgem are taking action alongside industry to deliver a smarter, more flexible energy system. Underpinning the plan are three areas of focus:

- 1) removing barriers to smart technologies, including storage;
- 2) enabling smart homes and businesses; and
- 3) making markets work for flexibility.

The Smart System and Flexibility Plan also announced up to £70 million of funding to support innovation in storage and other smart technologies up to 2021, including:

- £9m for cost reduction of energy storage technologies, and a further £600k for feasibility studies for a first-of-a-kind, large scale future storage demonstrator (now closed for entrants).
- A £7.6m non-domestic DSR competition (now closed for entrants), and a domestic DSR competition - planned launch in Autumn 2017.

Alongside this, the Faraday Challenge involves an investment of £246m to ensure the UK becomes a world-leader in the development and manufacture of batteries for the electrification of vehicles.

Acknowledging that there is still more to do, particularly in light of continued technological progression, the Smart Systems and Flexibility Plan will be implemented with continued engagement. As a result BEIS are keen for parties to engage - russell.jenkins1@beis.gov.uk

The Regulator's Perspective

Louise van Rensburg, Head of Flexibility and Whole Systems Coordination, Ofgem

Supporting comments of Russell Jenkins on the Smart Systems and Flexibility Plan, Louise van Rensburg acknowledged that it is important that the industry does not work in isolation, highlighted the impact of a flexible system on regulation. Ofgem therefore plan to take four key areas into consideration:

- 1) The right incentives on market participants.
- 2) The right incentives on network companies.
- 3) The right framework for system operators.
- 4) The right approach to residual cost recovery.

Three phases of development have been identified as we moves towards an energy system with greater flexibility. Currently in phase two of the plan, recently initiated activities have seen:

- The initiation of a Targeted Charging Review.
- The publication of the Smart Systems and Flexibility Plan.
- Early preparations for RIIO 2.
- A drive for the System Operator to reform balancing products.

The next phase of the plan will see a clear understanding of linkages/dependencies between industry participants.

Aggregators and Industrial & Commercial customer issues were acknowledged, including; access to the Balancing Mechanism (BM) for flexibility providers; protection for consumers participating in flexibility; further participation of large non-domestic energy users in DSR, ensuring a level playing field for DSR and Storage in the Capacity Market. Actions to combat these issues were highlighted including BSC modifications (P344/P354/P355), the development of a voluntary code of conduct for aggregators, and support of the SO's Power Responsive.

Future roles of network operators (TO, SO, DNOs) were also identified with particular attention towards the transition of DNOs to DSO (Distribution System Operators). Engagement between all network operators is of particular importance to deliver the best whole system outcome for consumers.

Role of the System Operator Update

Asheya Patten, Flexibility Workstream Lead, National Grid

Providing an update from the System Operator, Asheya Patten set out what National Grid is looking to achieve, including;

1. Transforming Markets and Governance
2. Becoming an Independent System Operator
3. Improving Investment Decision Making
4. Thinking Across Networks

From a system flexibility perspective broad milestones were outlined with some key deliverables expected for late 2017/early 2018. These include;

- National Grid's Simplified Product Roadmap;
- Regional Development Plan with UK Power Networks; and
- A DSO-SO Framework

Whilst there are still areas to progress, achievements have been made in a number of areas:

1. **Engagement** – Power Responsive case studies, reports, guidance material and work groups; 600 organisations registered to Power Responsive.
2. **Product Development** – FFR entry point decreased to 1MW; Development of EFR and DTU products; circa 25 Framework Agreements signed with battery asset providers.
3. **Service Improvements** – Reduced testing time from 8 to 2-3 weeks; Increased enquiries from new market entrants.
4. **Innovation** - Flagship innovation projects including Power Potential & UKPN Regional Development Projects.

Timescales for the legal separation of the SO and TO were identified culminating in effective code and license changes by April 2019. An open letter in response to Ofgem's July Working Paper and National Grid's viewpoint on future ESO regulation have recently been published. The viewpoint details how work packages detailing focus areas and financial incentives can help to deliver for customers.

Sessions 2, 3, & 4 – Breakout Sessions

Afternoon sessions allowed delegates to participate in less formal breakout sessions where roundtable discussions allowed industry participants to input into the following areas of current activity:

1. National Grid's Simplification of Products – Next Steps.
2. Code Changes relating to BM (Balancing Mechanism) Access.
3. Commercial Principles for Contracted Flexibility.

National Grid's Simplification of Products – Next Steps.

Lead by Asheya Patten and Adams Sims (Flexibility Manager at National Grid), delegates were presented with results from National Grid's System Needs and Product Strategy consultation focusing on changes to Balancing Services Products.

128 participants took part in the consultation representing 10 different sectors. 98% of the responses agreed with the proposed changes.

Results from the consultation consisted of the following findings:

- 57% believed the proposed standardisation of products would have a positive effect on competition.
- 79% believe standardisation will have a positive effect on transparency.
- Consultation demonstrates the broad view that standardised products, rather than single markets, would better enable stacking of services.
- 62% favour a mix of short and long term contracts
- 68% positive or very positive about trialling alternative procurement approaches

Three key themes have emerged from the consultation.

1. Greater transparency of the SO's day to day activities
2. A reduction in barriers to entry
3. The System Operator to provide more details on its simplification of products

Delegate discussions emerged to foster opinions on each of the three principles, and the proposed actions to take forward. Comments and feedback from the roundtable discussions can be view in the appendix.

Code Changes relating to BM (Balancing Mechanism) Access.

The breakout session was facilitated by:

- Adelle Wainwright (Senior Commercial Analyst, National Grid)
- Chris Fox (BSC Development Manager, National Grid)
- Mandi Francis (Business Change Manager, National Grid)

Routes to market for providing balancing services

Currently participants have multiple routes to market for provision of flexibility services to the SO.

- Via the Balancing Mechanism
- Via tender or bilateral contract with the Transmission System Operator (non BM, Ancillary Services)
- Via a third party such as Aggregator / Supplier, who can use either route, acting as an umbrella for smaller service providers

National Grid, in its role as the TSO (Transmission System Operator), is committed to supporting wider access to the Balancing Mechanism to enable flexibility services to be transparently procured from all participant sizes and technologies.

BSC code change as a route to wider access

The Balancing and Settlement Code (BSC) contains the governance arrangements for electricity balancing and settlement in Great Britain. The BSC is subject to open governance which means that industry parties can raise change proposals, which become modifications. For the majority of modifications, a working group is formed, industry consulted, and then the BSC Panel make a recommendation before going to Ofgem for final approval.

Ongoing modifications in the BM Access space

There are a number of modifications touching on the BM Access space

- **P344** - "Implementation of TERRE" (and related Grid Code mod GC0097) will facilitate participation in the pan-European Replacement Reserve (or RR) market. This uses Balancing Mechanism or BM systems through which to do this. As part of that there will be a mechanism for those currently outside the BM to participate in the BM systems
- **P355** - "BM Lite" seeks to widen access to the BM by enabling smaller parties to group together to form larger BMUs, with potentially reduced obligations. Still in early stages of development but it may take a similar approach to that being planned under P344, and there may be some overlap in relation to BM systems. We want to ensure that a consistent/compatible end to end solution is developed.
- **P354** - "Non-BM spill" seeks to perform imbalance adjustment for all providers of balancing services, the result of which would remove spill payments to ancillary service providers outside the BM. This need to perform imbalance adjustment for all is something that is also part of our EU obligations.

There was open discussion around what wider access to the BM meant to delegates and what some of the blockers were. It was suggested that cost of entry including installation of EDL/EDT was a blocker, but also around complexity and transparency of requirements (which held as an issue across balancing services).

Following this, delegates were asked to consider the follow questions as part of a table exercise:

- Q1: If we widen access to the Balancing Mechanism (BM), should everyone submit Physical Notifications (baseline notifications for the next settlement period) and what issues would there be in providing these.
- Q2: How should we determine instructed vs. delivered energy for ancillary / Balancing services?
- Q3: Minimum size and locational vs. non-locational BM and ancillary service delivery; thoughts.
- The session ended with a recap on opportunities to get involved via the relevant BSC Workgroups and upcoming consultations.

Commercial Principles for Contracted Flexibility.

Rhiannon Marsh (Power Responsive Manager, National Grid) led the breakout session, supported by Andrew Urquhart (Scottish and Southern Electricity Networks), Ben Godfrey (Western Power Distribution), Sotiris Georgiopoulos (UK Power Networks).

Highlighted earlier in the day, Ofgem recognised the need for DNO transition towards a DSO model. The ENA Open Networks project supports this understanding and the latest deliverable – the ENA Commercial Principles Paper aims to help shape this DNO-DSO transition. The paper aims to inform:

- the development of services to enable Distributed Energy Resources (DER) to participate in the efficient provision of flexibility services to multiple entities
- the evolution of relationships between the entities that will procure or support the DER service provision

The paper also highlights five areas of consideration. Following an outline of these considerations, delegates were asked to discuss and feedback responses to questions relating to each of the following principles.

1. Market Models: What models (procurement and operation) should be used to allow DER to offer multiple services to multiple entities?
2. Visibility & Controllability: How can DNOs and National Grid SO ensure sufficient visibility and controllability of DER output?
3. Routes to Market for DER: How can we ensure the various routes to market can coexist in a coordinated way?
4. Pricing DER Curtailment for Transmission Constraints: How should DER curtailment for transmission constraints be treated from a commercial perspective?
5. Distribution Constraint Management: How might distribution congestion management activities develop alongside the transition from DNO to DSO?

All feedback and responses from roundtable discussions can be found in the appendix.

Presentation Slides

1. [BEIS: Upgrading Our Energy System: Smart Systems and Flexibility Plan](#)
2. [Ofgem: The Regulator's Perspective](#)
3. [National Grid: Role of the System Operator Update](#)

Breakout Sessions

4. [National Grid's Simplification of Products – Next Steps.](#)
5. [Code Changes relating to BM \(Balancing Mechanism\) Access.](#)
6. [Commercial Principles for Contracted Flexibility.](#)

Appendix

Breakout Session - National Grid's Simplification of Products – Next Steps.

Thoughts arising from delegates on the three principles identified from the System Needs and Product Strategy consultation:

1. Greater transparency of the SO's day to day activities
2. A reduction in barriers to entry
3. The System Operator to provide more details on its simplification of products

Greater transparency of the SO's day to day activities

In practice, this means:

Providing information on our needs and methodology before procurement

Parties understanding why they were successful or not

Avoiding bundled procurement of products where possible

Where there is a justifiable reason for bundled procurement, we will be clear on the value interaction between the requirements

Clearly defined products which do not allow variability of key parameters; deviations are identified through ongoing performance monitoring and contractual penalties imposed

What are your views on the principles and actions proposed?

Pleased to see change, but can happen too slow, or sometimes with no forewarning of new regulations. Need a transparent, technology-neutral governance process for changes to technical requirements.

Need to understand:

- Buying strategy versus time horizon
- Assessment principles and tender decisions
- Where locational value of need is
- Volume to be procured
- How medium-term needs/volume relates to SOF
- Alignment between FFR publications and System Needs and Product Strategy work.

Suggestion for a Frequency Response working group (3-5 a year).

Suggest case studies on where revenue streams can/can't be stacked, and why

Needs to be timely publication of post-tender reports – i.e. 10 days is too long

Transparency of frequency response:

- All types of FR (including mandatory)
- Mandatory FR should be dropped
- Transparency of acceptance criteria
- Should have awareness of why bids should or should not get accepted
- Is this based on price / location / past performance?

BM Transparency:

- See types of services
- Why were some bids selected and why were some not?

A reduction in barriers to entry

In practice, this means delivering on the following:

Where possible, products will facilitate stacking of revenues through review of contracts

Products will allow for variable baselines / close to realtime capability updates to account for different types of assets e.g. wind and solar

Providers ensure compliance with upfront pre-qualification; SO increases focus on ongoing performance monitoring supported by a rigorous and published process, and backed up by significant penalties

Mix of short term markets and periodic long term contracts will be made available

What are your views on the principles and actions proposed?

Need to prioritise current markets, over future design. Suggest prioritisation of connections for assets delivering products required.

Support secondary trading markets for grid services. And agree with facilitation of stacking of services. This is still a “market of incumbents”.

Mixed contract lengths - make sure it is not impacted by incentive scheme. Allow providers to provide different length. Investors want long term contracts offered early on, then short term auctions, for short term delivery time.

Need to ensure compatibility with TERRE and MARI – can they be included in simplification or will this require further changes?

Control software platform is essential.

The System Operator to provide more details on its simplification of products

In practice, this means:

Products designed predominantly on operational need rather than the technical ability of specific assets

However, the product design will take some account of general technical performance to ensure that the product captures the greatest number of potential providers

Payment structures to be aligned to the European Balancing Guidelines (EBGL) where appropriate

Minimum technical requirements for DER providers as per the Demand Connection Code (DCC)

Technical pre-qualification process for all providers as per the System Operation Guidelines (SOGL)

New Standard Products (TERRE and MARI) included holistically within the balancing product suite

What are your views on the principles outlined?

Make small changes to give stability.

Need to think innovatively to be technology neutral / allow for new types of providers. New service design should open up the market for previously bundled services

Shorter term markets favourable – 1 week is better than 1 month. Need long-term contracts for bankability of new build assets.

Clarity needed on the process for reaching conclusion on issues that are still 'under discussion', such as 'state of charge management' and portfolio management.

Greater detail needed around how TERRE/MARA etc. influence regulation and market design for GB. These are very detailed regulations but industry is unclear how they will be implemented. There may be divergence between UK and EU markets

On engagement, workshops are of most value when discussing detail (e.g. auctions vs. tenders, or performance assessment). Request for more workshops after Product Roadmap is released.

On design of services:

- National Grid should rethink whether they want to procure inertia (including synthetic)
- Define DSO/SO constraint management process before implementation / trial

Breakout Session - Commercial Principles for Contracted Flexibility.

Thoughts arising from delegates on the five principles identified in the ENA Commercial Principles Paper.

Q1. What are your views on the key attributes for models to enable DER service provision?

A single tendering platform would help to ensure transparency. And complimentary dispatch processes and technical requirements (e.g. metering) across networks would be beneficial. SO and DSO should procure services to meet requirements separately, but the routes to market for DERs should be compatible. This will enable service stacking, as would the alignment of procurement timescales. In order to enable stacking of services, it must be clear which service takes precedent.

Opposing views suggested that DSO and the SO should communicate, rather than coordinate. And that DSO-SO coordination in fact reduces transparency.

Roles and responsibilities of parties should be clear – for example, if DSOs and SO are the procurers of services, they should not take part in aggregation or own assets.

Greater transparency is needed; pre and post tender, including locational signals (where requirements vary geographically) and reflective price information.

In terms of investment, DERs need long term visibility so they are able to invest in hardware with a known ROI. Commitment and stability are necessary. Sufficient time is required prior to auctions or tenders in order for parties to put assets in place.

Contrasting views on whether short-term or zero-hour contracts were favourable as they enable DERs to offer services flexibly, or whether longer term contracts were ideal.

With regards to the treatment of assets, participants suggested that DER that assist with network constraints should be able to avoid transmission charges.

Overall, the “whole system” models view is from a networks perspective – this should also reflect end-user/supplier/asset owners’ requirements and economics.

Q2. What are your views on how visibility and controllability of DER output can be efficiently delivered?

Standardisation of products, processes, protocols, interfaces and contracts:

One or fewer dispatch mechanisms (possibly central dispatch) would make for easier visibility to market participants and hopefully easier for balancing via stacking. Common protocols and standards recommended, whilst remaining as open as possible to new technologies. Blockchain solution suggested.

A common tendering platform is recommended, potentially similar to platform of continental European TSOs (DE, BE, NL).

Greater visibility of the following areas recommended:

Whole system view on network development and system requirements

Problems facing DNO/TNO so that innovative solutions can be provided e.g. battery over additional network reinforcement

Clear impact on price and value of network reinforcement, planned and unplanned outages – distribution at a GSP level, and transmission at a zonal level

Potential value of network constraint management would help, so services can be appropriately developed

Which parties instructs DER for service activation

Information to avoid conflict of interest

DSO controllability of DER is not required other than through market (price) based signals

Q3. What are your views on how to ensure choice in DER routes to market, whilst managing the impact on distribution network operation?

Consensus that centralised transactions for decentralised actions for 2030 vision. Information has to be provided by experts in the area but coordinated centrally.

Requirement for consistent contract across different DSOs. Shared and synced procurement platform should be

considered.

DER should be able to access DSO and TSO services. Potential service conflicts should be addressed –need to understand which party takes priority. There should be no ‘veto’ for the provision of flexibility for the DNO.

Long term contracts underpin investment, and information sharing is necessary to ensure that investment isn’t devalued by local constraints.

Q4. What are your views on how best to price curtailment from DER, and efficiently procure services from them, for managing transmission constraints?

Possibly payments for availability and utilisation (as per Short Term Operating Reserve). The same structure across transmission and distribution would be helpful. Possibly a backstop price – consider developers’ view and imbalance costs associated with action.

Request for central information on what the constraints solution/service would involve, with definitions and an indication of value. Ensure that DER has a single point of information regarding loads available linked to location.

Technical requirements (such as response time) should be practical and achievable from DER perspective.

Aggregators could be a key target in procuring services. Longer term contracts incentivise initial investment, but the ability to call off a short notice may be valuable.

Visibility of existing assets will aid in the recognition of value in each area. Information sharing between DSO and DSO is vital.

In contrast, not sure why anyone would pay DER to come offline if a non-commercial solution is available for free.

Q5. What commercial principles could support new approaches to D congestion management in future? How should synergies across T&D be captured?

DNO trial schemes may be accessible for existing assets may be able to take part – don’t generally work for getting a project off the ground.

Contracting between SO and DNO, leaving DER whole, would be cleaner.

Liquidity is fundamental for a market based approach.

This is reliant on access rights and connection agreements. Ensure that all flexible connections have been dispatched before procuring more services.

DNO needs to provide information in terms of likely procurement of flexibility at project connection application stage.