

Power Responsive Steering Group

Note of Twelfth Meeting

05 July 2018, 13:00-17:00hrs, held at Elexon's offices, 350 Euston Rd, London NW1 3AW.

This note has been prepared by National Grid on behalf of the Power Responsive Steering Group.

1. Welcome and introductions

Cathy McClay (chair) welcomed and thanked attendees for joining the meeting, which begins year 4 for the Power Responsive programme. A number of Steering Group members had attended the Power Responsive Summer Reception on 26 June 2018, where demand side successes to date were celebrated through a Flexibility Forum and evening drinks reception. Steering Group members were thanked for supporting the event and the programme, as we look ahead to further collaborative working over the next year to unlock demand side flexibility (DSF).

The main discussion at the last meeting on 11 April 2018 was on: [the development of regional markets and price discovery](#). A number of industry updates have taken place since, including:

- Electricity System Operator (ESO) has published the Product Roadmaps for [Reactive Power](#) and [Restoration](#).
- The first non-traditional providers using aggregated portfolios are proposing to access the Balancing Mechanism (BM).
- Western Power Distribution (WPD) has announced plans for 18 new zones where it aims to [procure demand side response](#) services to address operational requirements on its network.
- [Centrica's Cornwall Local Energy Market](#) project entered phase 2 following their April event. The next exciting phase will see market trials for flexibility services to be provided to Western Power Distribution and then later in the project to National Grid.

2. Demand side flexibility horizon-scan

BEIS

Russell Jenkins (BEIS) updated on government initiatives and funding routes to support DSF:

- **Smart Appliances Consultation** – As set out in the [Smart Systems Plan](#), BEIS have consulted from March to June 2018, on proposals via the [Smart Appliances Consultation](#). The Government response will be published in due course.
- **Domestic DSR Competition** – Awards have been announced for the first wave of funding in this BEIS competition. It provides up to £7.75 million of funding from 2018 to 2021 to support innovative domestic applications of DSR technologies and business models.
- **Industrial Strategy Challenge Fund** – Aims to bring together the UK's world-leading research with business to meet the major industrial and societal challenges of our time. The [Prospering from the Energy Revolution](#) challenge will invest £102.5 million to develop local energy systems that deliver cheaper and cleaner energy across power, heating and transport, while creating high value jobs and export capabilities.
- **The Road to Zero** – The publication of a strategy for electric vehicles led by OLEV would be published soon.

Ofgem

Louise van Rensburg (Ofgem) gave an update on the [Storage Consultation](#) due next month. A decision document on the RIIO2 Framework is also due at the end of July. This will provide a direction of travel rather than firm decisions. There will be plenty of engagement opportunities for stakeholders to provide feedback.

Charging Futures Forum (CFF)

Frances Wharburton (Ofgem) gave an overview on the CFF. Two workstreams sit within the programme - Targeted Charging Review (TCR) and Network Access Rights. The TCR is consulting on 'minded to' positions for transmission and distribution charging later this year.

Smaller new entrants find the CFF useful as a one-stop-shop for discussing future charging arrangements. Some market actors have found it difficult to commit time to engage in the process and understand the complexities of what proposals might mean in practice.

Customer representatives in the Power Responsive steering group noted that CFF discussions are often technical. Few customers are represented at the CFF, and there is a risk that the consumer voice might be lost amongst different interests. It was suggested that consumers could perhaps be consulted bilaterally and / or as a group, to ensure they understand the proposals and can engage effectively. There are helpful training materials on the CFF website - <http://www.chargingfutures.com/>. A question was raised whether the 'problem definition' is understood. Ofgem is undertaking modelling to understand the implication of continuing with existing charging arrangements and alternative approaches. Stakeholders were encouraged to engage through tcr@ofgem.gov.uk

ENA

Jim Cardwell (Northern Powergrid) updated the Steering Group on ENA's Open Networks project. Distribution Network Operators (DNOs) are considering how to work more closely with the ESO, and the role of Distribution System Operators (DSOs). As part of this thinking, the Future World Consultation is to be published by the end of July. This builds on the Open Networks Commercial Principles paper in 2017, but considers all the functions of DSO rather than simply market models, including detailed modelling and least regrets analysis. New platforms such as Piclo Flex are also emerging in this space, providing better visibility of constrained network locations where flexibility is most required.

Although there are now customer representatives on the main group for the Open Networks Project, engagement perhaps still has challenges, due to the complexity of the issues and a dominance of technical thinking. There are many subgroups. Therefore trying to follow developments is a challenge. It was highlighted that Power Responsive has tried to establish a common language that all stakeholders can understand, with simple presentation and short high-level summaries.

The System Operator

Colm Murphy (National Grid - System Operator) provided an update on the Electricity System Operator (ESO) Forward Plan, Product Roadmaps, and Wider Access to the BM.

ESO Forward Plan Updates

- **Information transparency:** In May, we completed development of Phase 1 of the customer portal which will provide both BSUoS forecast and out-turn data.
- **Vector Shift:** Innovative approaches to managing Balancing costs: During 2018 we have worked collaboratively with Ofgem and three DNOs to establish an appropriate approach and implement a new process to change the protection in areas at risk to Vector Shift. Bespoke Vector Shift contracts were awarded to 71 successful sites which met the assessment criteria and fulfilled our requirement at least cost to the consumer.
- **Code Leadership:** We will publish our thinking on how we can provide more strategic leadership across the industry code landscape and we will talk about our role in the EMR 5-year review in our ESO Incentives Q1 Report.
- **Opening up network planning** to a wider range of solution providers. On the 1st May, we published our Network Development Roadmap Consultation, which sets out an ambitious plan for how we will develop our Electricity Ten Year Statement (ETYS) and Network Options Assessment (NOA) to create much more value from the way the network is planned. It proposed that we will set out our electricity network needs clearly, invite network owners and market providers across transmission and distribution to tell us how they can meet those needs, when, and at what cost.

Product Roadmaps

Following the System Needs and Product Strategy (SNAPS) document, we've published a series of Product Roadmaps – these are roadmaps of actions and specific commitments to each of our services.

- Frequency Response and Reserve update:
 - **Faster acting frequency response** (<1second) – National Grid consulted on the service design in March and held two well-attended technical workshops in May to gather further feedback from the parties looking to participate in these services to help shape the design. The team will soon be sharing more information on the next steps in the process.
 - **Simplification of contracts** – National Grid are consulting on simplified Standard Contract Terms for FFR to aid clarity. STOR and Fast Reserve will follow.
- Restoration Roadmap: sets out the commitments and actions to improve transparency around Black Start services and to remove barriers to entry to allow improved market access to a broader range of potential participants.
- Reactive Power Roadmap: provides greater clarity on service requirements and plans to work more closely with industry partners to improve the shorter term market for reactive power.

Wider Access to the Balancing Mechanism:

The Balancing Mechanism (BM) is a core tool the ESO uses in both energy balancing and resolving a broad range of system operability challenges. Historically it has only been open to large transmission connected generators, therefore given the changing energy mix, there is a reduction in the amount of flexibility available in the BM at a time when our requirements for flexibility are increasing. To address this we are working to remove barriers to entry to the BM for distribution connected participants (including aggregators).

What the ESO are doing:

- Creating a new route into the BM for non-traditional providers (including independent aggregators) through a set of industry framework modifications and operational systems and process changes by December 2019. These changes also deliver the required changes to facilitate GB's participation in Project TERRE (Trans-European Replacement Reserves Exchange).

3. The potential DSF contribution from cities and local authorities.

Cathy McClay introduced the first topic for discussion by the Power Responsive steering group and explained that this was an introductory discussion, to be revisited in April 2019 alongside residential and 'behind-the-meter' flexibility. Key questions for Power Responsive were:

- What are the main opportunities and challenges for offering DSF via local and regional initiatives?
- What role can Power Responsive play in unlocking this 'place-based' flexibility?

Opening contributions came from guest speakers:

- **Tim Stiven (Energy Systems Catapult)** – on Energy Town, a new business platform to support communities of innovators (Piclo, Verv, Grid Edge, Levelise) working with households.
- **Linda Forbes (West Midlands Combined Authority)** – on devolution of power to Local Authorities and regional energy strategies.
- **Daniel Barrett (Greater London Authority)** – on Flex London, aiming to promote 1GW of flexible demand across London by 2050, and working with business customers and innovators.
- **Kate Beckingham (Crown Commercial Service)** – developing a strategy and dynamic purchasing system for the public sector.

Issues raised in discussion included:

- Flexibility is not currently being provided through air conditioning – which may link to a lack of ‘cold-stores’ in GB.
- Demand users are reducing their network access by being more self-sufficient. However access to networks is required to provide services back to the grid.
- Engagement between local authorities and DNOs is important for location-based flexibility. Although it may be challenging to engage local authorities in DSF, there may eventually be wider benefits – for example in delivering holistic energy services to tackle energy efficiency and fuel poverty, as well as health outcomes such as reduced emissions / clean air.

It is important to ensure that discussions on DSF at a national scale, link more closely with local and regional initiatives. Power Responsive plans to engage with cities and local authorities in Year 4, and will revisit this topic at the Steering Group in April 2019 alongside a discussion on residential and ‘behind-the-meter’ flexibility. We will also scope a ‘think piece’ on flexibility from commercial buildings.

For further detail on this discussion see our [Snapshot: emerging opportunities from location-based demand side flexibility \(DSF\) and electric vehicles.](#)

4. The potential DSF contribution from electric vehicles.

Guest speakers presented their view on the potential demand side flexibility contribution from electric vehicles (EVs), to set the scene for wider discussion.

- **Rebecca Sweeney (Energy Technologies Institute)** presented trends of EV uptake within GB, based on findings from a major ETI trial, including the potential impact on peak demand and trials to understand consumer behaviour around EV charging.
- **Dave Roberts (EA Technology)** also highlighted trials - *My Electric Avenue* and *Electric Nation* - designed to understand the potential impact of EV uptake on electricity networks, and the role of demand side flexibility in managing this.
- **Andrew Lam (Tesla)** suggested that it’s a common misconception that EVs are disruptive. They present opportunities for reduced emissions and noise, and could support the penetration of renewables by absorbing excess generation. EV charging should be managed, rather than uncontrolled, and market signals (such as time of use tariffs) may be expected to drive customer behaviour.

Issues raised in discussion included:

- **Automated and electric vehicles bill** – primary legislation could mandate smart charging, but there is no common agreement on the definition of smart charging.
- **The role of EVs for large energy users** – Some industrial and commercial (I&C) demand users are considering replacing their traditional vehicles with EVs. Whilst the capital cost of EVs is higher than traditional vehicles, the running costs are lower. In the cases where employees drive home company vehicles at the end of the working day, there are several challenges present, for example a potential lack of off-street parking.
- **Vehicle-to-grid** – the discussion focused on one-directional charging, as opposed to two-way applications.
- **Autonomous vehicles and future usage of EVs** – the assumption of future vehicle replacement being one-for-one should be challenged as we move towards ‘shared’ forms of transport. With a decline in vehicle ownership, an increase in shared vehicles, possibly in use 23 hours a day, and possibly autonomous, may limit the flexible electricity consumption on offer.
- **Whole system thinking** – goes beyond networks to encompass consumers, the charging structure of cars and the role EVs can play in absorbing excess generation. It may be helpful to map the level of expected EV uptake across GB, with a view to better informing the potential for regional markets to solve local network issues.

- **Consumer choice and signals to shape behaviours** – some drivers may experience “range anxiety” with EVs. Drivers are comfortable travelling with close-to-empty tanks in traditional vehicles because they can judge the possible mileage, and with easily accessible fuel stations. Drivers may be apprehensive about the risk of not finding a charge point when needed. It is possible that society will adapt to this as EV technology becomes more commonplace and familiar.
- **Standards for EV charging** – this may be a helpful step, but should not be overly prescriptive.
- **Signals for EV charging** – appropriate signals are needed to drive consumer behaviour and indicate where the value is for flexible electricity consumption.

The importance of the government’s ‘Road to Zero’ strategy was highlighted, allowing sufficient flexibility for the market to innovate. There are different outlooks for electric vehicles – ranging from individuals with EVs actively offering flexibility to the system to autonomous and shared vehicles that may require fast charging. We will consider the opportunities and implications of these scenarios in the Power Responsive Annual Report 2018.

4. Power Responsive update

Rhiannon Marsh (Power Responsive, National Grid) provided an update on recent Power Responsive engagement events:

- **Power Responsive Executive Dinner** was held on 29th May, to bring together a cross-section of senior stakeholders for demand side flexibility, policy and regulation to help steer the direction for Power Responsive for Year 4. Guests provided their views on three topics:
 1. What is the current state of play for demand side flexibility and is there a clear line of sight for the future?
 2. How do we take a whole system approach and enable value stacking?
 3. When will there be a direct role for smaller actors and assets to offer demand side flexibility?

Guests discussed that whilst there are a number of challenges still to overcome, it is important not to lose sight of the progress made in market-based solutions – for example National Grid’s System Needs and Product Strategy document, and BEIS and Ofgem’s Smart Systems and Flexibility Plan. Data availability and transparency (DSF prices, locational information etc) and customer safeguards (for DSF participants and non-participants) were identified as important, and to unlock potential from demand side flexibility, an understanding of the customer journey is fundamental.

- **Power Responsive Summer Reception** took place on Tuesday 26 June bringing together stakeholders including industrial and commercial (I&C) energy users, storage developers, small-scale generators, suppliers and aggregators, finance providers, energy experts and policy makers. From 80 delegates at the first annual Power Responsive event in 2015, 350 delegates registered to attend this year, with 18 exhibitors.

5. Any other business

No matters arising.

6. Next steps

It was agreed that the topic for the next Steering Group would focus on: Obtaining a clearer line-of-sight for DSF providers across all the various policy, regulatory, and market-based initiatives and how they interact.

- **Future meeting dates:** 3 October 2018; 30 January 2019.

Attendees

Name	Company	Sector representation
Cathy McClay	National Grid	Chair
David Capper	BEIS	Policy & Regulation
Louise van Rensburg	Ofgem	Policy & Regulation
Frances Warburton	Ofgem	Policy & Regulation
Colm Murphy	National Grid	System Operator
Jim Cardwell	Northern Powergrid	Distribution Network Operator
Helen Stack	Centrica	Large Supplier
Jo Butlin	EnergyBridge	Market Commentator
Robert Buckley	Cornwall Insight	Small Supplier
Will Chilvers	Orsted	Small Supplier
Peter Frampton	Elexon	Electricity Market
Eddie Proffitt	MEUC	I&C (industry)
Kate Beckingham	Crown Commercial Service	I&C (public)
Alastair Martin	Flexitricity	Aggregator
Jonathan Ainley	KiWi Power	Aggregator
Daniel Barrett	Greater London Authority	Guest Contributor
Tim Stivens	Energy Systems Catapult	Guest Contributor
Linda Forbes	West Midlands Combined Authority	Guest Contributor
Dave Roberts	EA Technology	Guest Contributor
Rebecca Sweeney	Energy Technologies Institute	Guest Contributor
Andrew Lam	Tesla	Guest Contributor
Judith Ward	Sustainability First	Secretariat
Clare Dudeney	Sustainability First	Secretariat
Rhiannon Marsh	National Grid	Secretariat
Adrian Sellar	National Grid	Secretariat

Apologies:

Sara Vaughan (E.ON UK)
 Roger Hey (Western Power Distribution)
 Matthew Webb (TFL)
 Marek Kubik (Fluence Energy)
 Matthew Rowe (DNV GL)
 Dale Geach (Siemens)
 Jeff Whittingham (Orsted)
 Jo Butlin (EnergyBridge)
 Andy Pennick (United Utilities)