Power Responsive
Snapshot on the Demand Side Flexibility Market Evolution

This Snapshot on the Demand Side Flexibility Market Evolution has been prepared by Sustainability First on behalf of the Power Responsive steering group.

Introduction
This snapshot focuses on the role of demand side flexibility within GB electricity markets today and how markets may evolve in future. In particular, it briefly considers: some of the challenges for demand side flexibility in current markets; what future arrangements might look like; guiding principles for market development; and some critical questions to address. It concludes with the next steps for Power Responsive in Year 2.

This snapshot has been pulled together by Sustainability First based on presentations and discussion at the Power Responsive steering group meeting on 27 July 2016. It should not be taken as advice or guidance on the part of National Grid or Sustainability First regarding involvement or investment in demand side markets. Particular thanks go to Ofgem for their presentation, which helped to frame the discussion.

Demand side flexibility today
Demand side flexibility is playing an increasingly important role in GB electricity markets, and an appetite is growing amongst market participants and business customers. As business models change, we are seeing some convergence of energy supply and energy services, including between the roles of suppliers and aggregators.

The most established market for demand side flexibility today is Balancing. The Capacity Market transitional arrangements have successfully started to attract new demand side participation. Suppliers are also beginning to offer products to manage volatility and their imbalance position ahead of gate closure. Future opportunities are anticipated in the wholesale market, with aggregators seeking to participate directly.

Policy makers and market actors envisage that the scale and value of demand side flexibility is likely to grow in future, including: to support intermittent renewable generation; as part of a smarter system; and with technological advances.

Challenges of current market arrangements
Current market arrangements may present barriers to realising the opportunities for demand side flexibility. Regulatory and market arrangements are still largely designed for an "old world". For a static system, one-way electricity flows from power centres to customers, as opposed to a dynamic system with multi-way flows from distributed generation, storage and responsive customers.

Balancing and other ancillary service products have largely been designed with traditional generation in mind. Instead of reforming existing products, ‘bolt-on’ solutions have been developed to enable demand side response participation. Some contractual issues also remain, e.g. the requirement for demand side response providers to put up bid bonds for one-year contracts in the capacity market – which are unfavourable against a generator with a long-term contract.

Markets are complex and fragmented – it is difficult to fully understand the interactions and impacts of the different markets in DSR. Many flexibility incentives and products are insufficiently aligned or joined-up as

1 Ofgem slides available: Flexibility markets – now and in the future
2 Such as capacity market transitional arrangements, Firm Frequency Response (FFR) bridging and short-term operating reserve (STOR) runway.
is the case between markets (balancing, ancillary services, capacity); or between the SO, transmission and
distribution (e.g. peak charges, incentives for DSR availability and utilisation, approaches to connection,
location, losses etc.). As more actors participate in different markets there may be an increasing lack of
visibility of customer load-shifting activity, which might impact other market actors. Solutions to these many
challenges will be necessary for flexibility markets to flourish.

There are commercial challenges, especially for new entrants, due to lack of investor certainty and reliance
on multiple revenue streams. Therefore, some demand side providers would like to see longer-term
contracts. Others suggest that more frequent tenders, a move to regular auctions, standardisation of
products would enable wider market entry, and potentially lower minimum size thresholds.

For business customers, it can be confusing to navigate the different products and routes to market. There
are cultural, informational and behavioural barriers. Confidence is critical, and can be undermined by
conflicting sales messages from demand side providers. Industry standards are needed, and are being
developed. For customers, senior buy-in and cross-business commitment is often required. Demand side
flexibility should link into the significant opportunities for energy efficiency³.

The market expectation is that change will occur. However, if change does not happen quickly enough,
there is a risk of discouraging new non-traditional market participants. Likewise, as business customer
interest grows, we need to ensure they are able to participate, and do not miss the opportunity. For
example, some customers wanted to take part in the transitional auctions but couldn’t respond within the
required timescales. Oversubscription for the new Enhanced Frequency Reserve (EFR) scheme will also
mean disappointed bidders.

Future picture for demand side flexibility

Some of the challenges outlined above can be addressed through changes to existing arrangements and
products. But increasingly market actors and business customers are calling for visibility on what future
market arrangements might look like.

Ofgem suggests that we might see the emergence of:

- A more granular wholesale market – e.g. location, time, connection level
- Flexibility markets – rationalise flexibility products, “marketise” more SO activities, DSO / SO
  collaboration
- A market in capacity and constraints – firm vs. non-firm grid access, capacity rights and
  obligations, secondary markets
- Local markets – managing local congestion, enabling local solutions, supply and demand side
  constraints.

There is broad agreement on the benefits of market-based solutions and opportunities for secondary
trading. It was suggested that this could be achieved through ‘fungible’ flexibility products – standardised
for system needs, rather than bespoke to the technical capability or asset specific nature of providers.
Others see this differently: namely that in the early days of establishing DSR markets, bespoke approaches
to product development and revenue streams which are at least to some extent ‘asset-friendly’ can be
helpful.

There is a clear tension between changing existing markets to ensure that they are fit for future, and not
knowing how markets may develop. But slow watchful approach, may also rule things out. So we need to
provide a sense of direction for those coming into the markets and wanting to invest, without being able to
offer certainty. The route-map from the DECC / Ofgem call for evidence is expected to be helpful.

It was felt that a shared vision of an end-point, or at least the principles for a future market is required, as
are the incremental steps to get there. This should be an evolutionary pathway – to ensure that we build on
lessons learned and maintain investor confidence in the transition from existing to future arrangements.

³ e.g. as identified through the Energy Saving Opportunities Scheme (ESOS).
High-level principles

There was broad agreement on some initial high-level principles for the development of future products and markets:

- Simple;
- Market based;
- Technology neutral;
- Level playing field - accessible to all parties;
- Joined-up and sufficiently co-ordinated;
- Incremental change;
- Centred on the customer.

Agile to accommodate ‘disruptors’.

Some critical questions

During the discussion some critical questions emerged which will require further consideration:

- Separate markets for capacity, flexibility and energy; or a single ‘converged’ market?
- Directed or competitive markets?
- Change by design or by disrupters? Who will drive change - policy makers; existing market actors; new entrants; business customers; household customers; non-energy developments (e.g. building systems)?
- Prescriptive / standardised versus provider capability led products?
- National and / or local markets, how to coordinate?
- How far to direct customer access to markets – or through intermediaries?
- Have we learned the lessons of top-down approaches– e.g. NETA was originally designed to enable demand side bidding?

Power Responsive in Year 2

Power Responsive will shift its focus in Year 2 beyond awareness raising to consolidation and a more practical approach. There will be four main ‘delivery’ areas – three detailed workstreams focused on improvements today, and the fourth considering evolution in future:

- **Information provision** – improve historical, current and forward looking information on products and services for customers.
- **Shared services framework** – detailed work to avoid conflicts among markets, products and actors - and to take advantage of synergies.
- **Commercial strategy / simplified products** – new National Grid business development team - focused on non-traditional providers, and ensuring the right signals and incentives are in place.
- **Structural market change** – develop a common vision for a future market framework to incentivise flexibility.

Next Steps:

National Grid will develop plans for incremental changes that can be progressed against the first three delivery areas above. This will be shared with the steering group ahead of the next meeting for discussion and confirmation of approach.

On structural market change, National Grid’s work outside of the steering group will drive this forward. Through Power Responsive, stakeholders will be directed to the opportunities to input and shape the future vision and roadmap for structural market change.