

Power Responsive

Snapshot on value stacking of demand side flexibility from different GB markets

This snapshot reflects a wide-ranging discussion on value stacking at the Power Responsive steering group meeting on 26 April 2017, held under the Chatham House rule.

The discussion focused on the question: *assuming value stacking from multiple sources and market actors – to what extent can we move to a simpler ‘customer led’ landscape of products and services?*

It covered the expectation of flexibility providers for value stacking and the steps to unlock value for existing and future demand side providers.

Asheya Patten (National Grid) opened with what is meant by value stacking and current routes to market for customer demand side flexibility. Sotiris Georgiopoulos (UK Power Networks) and Roger Hey (Western Power Distribution) discussed how market actors are working collaboratively to optimise value stacking across markets.

What does value stacking mean?

By value stacking, we mean the pooling together of multiple revenue streams to build a business case for investing in flexibility. It was suggested that value stacking is largely a GB concept, as services are binary and there is uncertainty in individual markets. So, providers need to participate in multiple markets to ensure a reliable revenue stream. The US tends not to necessitate value stacking, as markets for flexibility seem to provide more revenue certainty.

Current routes to market

Currently there are different revenue streams offered by market actors and there are plural routes to market for flexibility providers, including:

- **Capacity market** – Government / Electricity Market Reform delivery body
- **Wholesale market (& Balancing Mechanism)** – suppliers
- **Network charging signals** – suppliers
- **Energy balancing** – system operator
- **Network services “missing markets”** – System operator, distribution network operators (DNO)/ distribution system operators (DSO)

Each market includes various products. Individual providers can offer multiple services to different market actors – directly or via aggregators, suppliers or other third parties. The result is a complex picture with many different options available to any single provider. This raises questions in terms of deciding which products and routes to market are best for them and their assets.

The markets are also changing and evolving. Value shifts between markets. Wholesale markets are in transition. Network charging signals for transmission and distribution are currently under review. DNOs/DSOs are trialling different local schemes and collaborations with the system operator. Which means more available revenue streams but increases complexity further.

Collaborative work – DNOs and SO

DNOs are building on innovation trials, including the low carbon network fund (LCNF) and network innovation fund, to incorporate flexibility schemes into business as usual operations. There has been a lot of theoretical debate about value stacking, so the DNOs are working with the SO to see how this might work in practice and how value can be shared between parties. DNO flexibility procurement is not about system peak or overall consumption, it is about optimising use of existing assets, in order to get the timing right of future investments and upgrades. It was noted that DNOs are all on different roads – some require flexibility now, others in the future.

Two DNOs gave brief overviews of their current flexibility projects:

| UK Power Networks | Western Power Distribution |
|--|--|
| <ul style="list-style-type: none"> • ‘Power Potential’ • Flexibility tender for winter peak service. • Local service – 10 specific schemes. • Seeking response time of 1½ hrs and above. • Working with System Operator to make schemes compatible with SO services. • Currently writing consultation document. | <ul style="list-style-type: none"> • Over time procurement of ~100MW of flexibility for use by the DNO/DSO for local needs. • Two significant projects: <ol style="list-style-type: none"> 1. <i>‘Flexible power’</i> – five constraint-managed zones in the East Midlands. Working with customers direct. Day ahead & real-time procurement options 2. <i>‘Project Entire’</i> – Fully managed service, replicating a DSO regulated market. Use DSO resource – local teams, local authorities who understand customers and where might get flexibility from. |

Any flexibility not required by the distribution network can be signalled as available to the transmission network or system operator. So the DNO/DSO may act as both a purchaser and facilitator of flexibility services. Some actors raised concerns about distribution networks playing this dual role. There was discussion on the role of aggregators in a future DSO model. The Electricity Network Association’s TSO/DSO work programme was highlighted – and it was suggested that we need further engagement on this with the wider industry.

Business customer & provider expectations

Business customers and providers want simple, reliable revenue streams so they can invest in demand side flexibility. Ideally some would like to say what assets they have and what flexibility services they can offer the market, have instructions or awareness of the value that flexibility has, and market actors can decide how to use this flexibility to best serve the system. Essentially they would like a clear signal to switch on/off, up/down, ideally automated, and earn revenue for that.

Such a customer led approach is very different from the situation today, where market actors procure individual products for capacity, reserve, frequency and ancillary services based on their specific needs and requirements. So how can customer expectations and the state of demand side markets today be reconciled? What steps can be taken to streamline products, make prices and requirements clearer, markets more comparable and routes in more accessible? Is there a need for greater whole system coordination? How far could flexibility markets be turned around to be truly customer led?

Currently many customers and providers find it unduly complicated to participate in markets on their own. They need to work through aggregators, suppliers and other third parties.

Role of aggregators

Aggregators and third parties can help make it simpler for customers to participate in demand side flexibility – navigating the different products and options, offering access to multiple revenue streams and handling the complexities of different markets, sectors and assets. Aggregators have played a crucial role in establishing demand side flexibility markets. Customers pay for this service, knowledge and expertise.

An aggregator asked customers what is more important, simplicity or reliability of contract opportunity. It was noted that there had been simple products, such as the Demand Side Balancing Reserve (DSBR), but this was a ‘short lived’ scheme. The Short Term Operating Reserve (STOR) is not simple, but it has a track record and longevity – you can see its progression over time. Complexity is a fundamental part of the electricity market. So should the focus be on greater certainty for the customer.

A business customer representative suggested that some simple schemes – such as Triads – has been extremely effective, because they require no prior commitment, customers can decide whether to respond on the day, and they do not need aggregator involvement. Market complexity makes the role of aggregators more critical. Could products and routes to market be simplified in such a way to enable customers to contract directly?

Supplier perspective

Suppliers suggested that the ideal is for a simple customer proposition, such as guaranteed saving off energy bills and/or fixed payment for rights to use equipment, where suppliers genuinely add value by taking on market complexity. But this view was challenged, in that it had yet to be successfully demonstrated. A number of suppliers have tried, but found it very challenging.

Optimisation

Perhaps we should think in terms of 'optimisation' (or 'optionality') rather than seeking to reduce complexity per say. It was noted that 'optimisation' suggests something is broadly working, yet you are making it better. In this case, the aim is to make a proposition work by stacking value for customers and sharing value between market actors in the most effective way, whilst maintain competition.

'Optimisation' could happen at three levels: procurers; partners/aggregators; or in-house

Procurers can collaborate to share value. They could develop a common set of operational processes to make it easier to compare, participate in and switch between schemes, for example, an agreed operation to opt in/out of participation and resell on flexibility. A merit order for use of flexibility is also needed.

There was discussion as to whether we are inevitably facing a 'middleman' world and whether that matters. In such a world it will be important to have transparency and openness, so you can switch and shop around, and clear standards. It was suggested that it may be necessary to go through an aggregator enabled phase before customers can bring expertise in-house.

Other issues

- **Baselining** – when considering value across markets, how do you know what you're buying and selling. What is the role of baselining? Can we develop an agreed methodology, to standardise testing, measurement and compliance?
- **Early involvement of technology developers** – it was noted that there are technical limits to what electricity storage units can do – e.g. fully charging and discharging a battery. Therefore when setting future projections for demand side flexibility, it is important to engage early with technology developers, so they can innovate to meet future needs and requirements.

Conclusion and next steps

There was general recognition of some of the uncertainties and complexities of the current market picture. Further work is needed to unpack what consumers really need – simplicity, confidence, optimisation and/or optionality – and how best to achieve these: market actors collaborating; aggregators managing complexity; and/or customers developing the expertise to engage on their own. It would also be important for services to continue to develop efficiently through market-led approaches.

The issues of value stacking will be explored further through a facilitated break-out session at the Power Responsive Annual Conference on 27 June 2017.

Sustainability First

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