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Dear Ben

Creating the right environment for demand-side response consultation

Thank you for the opportunity to respond to this consultation. This response is provided by Electricity North West in our capacity as a Distribution Network Operator. We have several years' experience of operating contracts with individual commercial/industrial customers, designed to limit their demand requirements at specified times. More recently we have developed our "Capacity to Customers (C_2C)"[1] project (under the Low Carbon Networks Fund) where we utilise innovative post-fault Demand Side Response (DSR) contracts to control the demand or export of customers on a circuit under depleted network conditions in order to meet network security requirements.

We have not aimed to answer your specific questions but have provided some observations from our experience, addressing the three preconditions for DSR identified in the consultation.

Introduction

Our overall observation on the current levels of participation in the UK for the provision of DSR services to the electricity market is that the UK lags behind other countries such as North America, New Zealand and Australia where DSR is embedded as a mature and valued service for the management of energy systems. Furthermore, the foundations of cultural change have been established by openly applauding DSR events – for example supermarkets announce to their customers that lighting and air conditioning levels have been reduced to safeguard customers' home supply.

In the UK, DSR in the form of off-peak heating control has existed for many years. However, the more commercial forms remain in the early stages of development. All industry parties, including the National Electricity Transmission System Operator (NETSO), Transmission Operators (TO), Suppliers, Distribution Network Operators (DNOs) and Independent Distribution Network Operators (IDNOs) have incentives to use DSR resources; however the relatively higher incentives available to Suppliers and NETSO (with the assistance of aggregators) have led them to introduce the early forms of DSR such as Short Term Operating Reserve (STOR). It is of note that more mature DSR markets tend to contain vertically integrated Supply and Distribution businesses where the benefits of DSR can be aggregated across the supply chain.

[1] http:/www.enwl.co.uk/C2C

Precondition 1: Industry parties need to be confident that there is value for them in demand-side response to justify the investment

The separation of roles within the UK electricity market has resulted in users commissioning or valuing services in isolation, without necessarily considering the effect on or the value to other potential users. The structure of the regulatory framework within UK electricity market does not naturally lead to collaborative use of DSR resources and there is some evidence of individual parties acting to contract for DSR on an exclusive basis. This behaviour is in part driven by the incentives on parties and their need to manage delivery certainty. Use of DSR by Suppliers and the NETSO is comparatively straightforward as there is a simple arbitrage available as the purchaser understands the alternative price for not securing DSR when required. For network operators, the valuation of DSR is more complex, requiring careful consideration of service delivery. Additionally network operators tend to have a highly locational need for DSR, whereas NETSO and Suppliers tend to have a less geographically defined requirement.

The business case for the sustained provision of DSR services to network operators has become clearer as the RIIO price control arrangements have been finalised. A significant proportion of the early DSR provision to network operators has been undertaken using the Innovation Funding Incentive (IFI) and Low Carbon Networks (LCN) funding. This work has been of great value and will continue to assist network operators in undertaking the comparative cost benefit analysis of DSR including issues such as the risk of non-delivery of services.

Network operators have been trialling the use of DSR to help avoid or defer network reinforcement, with many of the trials targeting industrial and commercial customers. This group of customers are attractive to DSR users due to the volume of controllable demand and the technical sophistication of their internal energy control processes. For all DSR users, including network operators, certainty of service provision is a significant factor in valuing DSR against alternatives. A range of approaches is being trialled to deliver certainty; examples include the use of direct control, over-subscribing, use of penalties for non-provision.

Although the majority of our work so far has focused on the value of DSR from a DNO perspective, using DSR to avoid or defer network reinforcement, we also recognise that cross industry work on DSR and learning dissemination offer a valuable route for the evaluation of DSR benefits. This can provide additional insights over individual company perspectives which are by their very nature limited to the standpoint of their incentive structures.

Our early work with National Grid and Poyry[2], showed that where there is a competing requirement between parties (NETSO, Supplier, DNO) then in the majority of cases the DNO is unable to match the price being offered by other parties. Initiatives such as Capacity to Customers (C_2C) are designed to both increase the value to the DNO and to reduce the probability of conflicting requirements between parties. However, if the UK is to obtain the greatest benefit from DSR, there remains a need to increase the pool of DSR providers and to improve co-ordination between users.

The development of mechanisms to allow the parties to better co-ordinate and hence leverage the value available from DSR resources remains outstanding and will become of increasing importance in the future.

In addition, the question of who should own and operate the DSR automation equipment installed at the customer's premises requires careful consideration to ensure there are no barriers to accessibility. The concept of an aggregator owning and installing automation equipment on behalf of the DNO is also being explored under the C_2C project.

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2 http://www.poyry.co.uk/sites/www.poyry.uk/files/717_DSR_Price_signals_Report_v1_0.pdf

Precondition 2: The value of demand-side response services needs to be effectively signalled to customers

The consultation paper highlights how, through the use of regulatory and/or commercial incentives, the arrangements persuade decision-makers to seek a demand side response. Suppliers and NETSO have responded by creating market frameworks and/or relationships for the competitive provision of DSR services. This has helped those end customers who can provide flexibility in their demand consumption or generation production patterns to evaluate the benefits of becoming DSR providers either directly or through an agent or aggregator.

It appears that each individual network operator is factoring uncertainty into the value equation based on the level of risk they are willing to take against fulfilling the licence conditions for system security, balanced with the incentive mechanisms to deliver continuity of supply. As a consequence there is much less transparency for end customers to see the value of DSR provision to DNOs.

At Electricity North West, we have trialled the provision of DSR both via aggregators and directly with customers. Whilst we have previously secured DSR contracts with customers our most recent experience in the use of aggregators to secure 5MVA of traditional peak lopping DSR in two areas of our network was unsuccessful, with price being the deciding factor. Our C_2C trial in contrast has been much more successful in securing post-fault DSR contracts and we have secured three customers directly within the first few weeks of the contracts being available.

The successful use of DSR requires a network operator to understand the DSR provider's business more fully and to offer additional services such as support during periods of contract activation. The building of relationships and trust between network operators and DSR suppliers is vital to the success of DSR and will require work on the part of network operators to actively market DSR.

Precondition 3: Customers need to be aware of and able to access the opportunities

In order to develop the size and availability of DSR resources, there is a need to increase the general awareness of DSR as a service and the opportunities available to customers who are able to flex their demand and/or generation. Within the incentive regime enabled by RIIO-ED1 network operators are well placed to undertake this exercise.

The key issue for network operators is how to increase customer awareness of the value attached to demand response as an alternative to network reinforcement. The majority of UK electricity customers have no understanding of how the real cost of electricity usage varies over time (day, month and season) or of the costs of providing networks to convey electricity to their premises. Smart Meters will partly address the time transparency issue; however to engage customers more fully in understanding how to reduce their electricity bills by changing their behaviour (either in the level and/or time of consumption), then clear and timely price information must be made available. Excellent examples of such customer empowerment can be found in other utilities such as telecommunications and in countries such as France where energy bills are akin to telephone bills; clearly differentiating capacity charges, peak and off-peak usage charges.

The simplest form of cost transparency leading to a demand side response is achievable by instigating static time of use tariffs. To support this requires:

- Network operators to extend the application of time of use costs in their common charging methodologies;
- Suppliers to reflect the time of use costs in their tariffs;
- Suppliers to deliver the functionality in meters to collect time of use metered data and in-home display (IHDs), showing time of use costs; and
- Electricity industry to agree amendments to the settlements system to handle the actual time of use metered data.

Currently network operators, through nationally agreed common charging methodologies, reflect the costs for network provision and usage. The level of sophistication is high for the relatively small group of customers connected to the extra high voltage networks, where the costs reflect the provision and use of identifiable assets in the distribution networks. At lower voltage levels the number of customers increases, the level of individual identification drops and the averaging of network design, operation and costs becomes prevalent. This lower level of sophistication means that for a domestic customer the distribution use of system charges are represented by either a single rate or two rate tariff. It is only when network costs are disaggregated into appropriate time bands that Suppliers can display these costs within their tariffs.

Suppliers generally provide simple single rate or two rate tariffs for domestic customers in the GB electricity market and there is growing pressure to simplify tariffs further in the interests of ease of comparison between competing supplier offerings; however the aspiration for simplicity conflicts with the objective, identified above, for Suppliers to reflect the costs from network operators in their tariffs to customers.

Given that Smart meters provide the opportunity to give time-of-use price signals that could drive DSR, it is important that the industry decide where the appropriate balance lies between the conflicting desires for simplicity and cost-transparency in end user tariffs. Alternatively, it needs to be agreed that complex and innovative charging products can remain alongside the standard tariffs. We suggest in particular that there will be a continuing need for bespoke DSR arrangements designed to address the specific local needs of distribution networks.

Please contact me or Mark Crane on 0771 0087168 if you would like to discuss any of the above further.

Yours sincerely

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Paul Bircham
Regulation Director