



**'Creating the Right Environment for Demand-Side  
Response'**

**CONSULTATION RESPONSE DOCUMENT  
FROM THE DSR FORUM**

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## **Introduction**

This consultation response has been provided by the Demand Side Response (DSR) Forum, run by EA Technology.

The Forum was founded in 2011 and meets to discuss a range of issues in relation to DSR which are of importance to our members, including technological developments, project deployments and potential challenges to DSR including the role of the customer and standards development. Membership is drawn from various sectors of relevance to DSR and attendance at workshops has come from Energy Suppliers, academia, Distribution Network Operators (DNOs), government agencies, technology developers, independent consultants and demand aggregators.

This response document is drawn from the result of discussions held at the Demand Response Forum Workshop which took place on 25<sup>th</sup> June 2013, hosted by the University of Salford. It represents a summary of the views expressed during the day, and as such is a consensus view rather than that of any individual workshop attendee. The workshop was attended by representatives from the following organisations:

- Advanced Control Partnerships
- E.ON New Build and Technology
- EA Technology
- Electricity North West
- Energy Innovation Centre
- ESB Networks Ltd.
- Manx Electricity Authority
- SP Energy Networks
- University of Salford

The main messages from the group's response to the consultation can be grouped under the following key themes:

- **Engagement with customers:** This engagement should seek to inform and educate consumers regarding the electricity industry, and the important role of demand response. Consideration should be given to channels via which this message is delivered, and ensuring a clear, consistent approach. This engagement needs to involve both current consumers and those of the future, learning lessons from other sectors such as the widespread adoption of recycling by domestic consumers. An acknowledgement is required that engagement with different customers will require different techniques, so for example a large industrial customer who is already involved in STOR may require a different approach to a smaller commercial plant, who in turn requires a different message to a domestic consumer.
- **Timing the introduction of DSR measures:** The appropriate time to introduce DSR measures should be addressed. For instance, it was felt that it is important to introduce measures to mitigate the impact of new technologies (such as heat pumps and electric vehicles) at the same time as they are installed, before customers develop habits and expectations around the use of their new technology. DNOs also report success in engaging with customers when they apply for a connection to the network, rather than after the event, as the contacts and relationships required are already in place.
- **Considering the many factors which influence DSR:** There are factors outside of the current electricity industry regulatory and commercial frameworks which influence customers' ability to offer demand response services which could have a high value to various parties in the industry. These include areas such as the Carbon Reduction Commitment (CRC) scheme and Building Regulations in order to reward companies for providing DSR and ensuring that buildings are designed such that they are able to provide this response.

Any queries in relation to this response should be addressed to Karen Platt, EA Technology ([Karen.Platt@eatechnology.com](mailto:Karen.Platt@eatechnology.com), 0151 347 2354).

## Response to Consultation Questions

### **1. Are there any additional key challenges associated with revealing the value of demand-side response across the system? If so, please identify and explain these challenges.**

#### **Response:**

Demand Side Response for DNOs is highly locational. It can be difficult for them to secure the bespoke service that they are requiring from a single branch of a chain such as a supermarket because decisions about participating in energy schemes are often taken at a national level. DNOs will only require DSR from customers that are located on a particular feeder who use electricity at a particular time.

Currently DSR is not recognised by schemes such as:

- Carbon Reduction Commitment (CRC) Energy Efficiency Scheme
- Standard Assessment Procedure (SAP)
- Building Regulations

For example, SAP contains a carbon value for electricity (kg CO<sub>2</sub>/kWh electricity consumed) that is constant over the day. Electric convection heaters are currently more highly rated than storage heaters by this scheme despite their usual reliance on peak time electricity. Equally the scheme does not reward the installation of heat pumps that have DSR or thermal storage functionality over those without. Consequently technology is being installed into New Build homes that has the potential to cause network issues, especially in areas without a gas supply where clustering of heat pumps could be an issue.

Building Regulations do not encourage the installation of technology that could make it easier for a householder to participate in DSR in the future. It is important that these technologies are included in Building Regulations as a means of introducing them to installers so that they can apply them to the rest of the housing stock.

Companies that participate in the CRC scheme cannot gain credit for participating in DSR schemes such as STOR or frequency response.

### **2. Can current regulatory and commercial arrangements provide the means to secure demand-side response being delivered? If not, what will regulatory and commercial arrangements need to deliver in the future?**

#### **Response:**

Experience gathered through Low Carbon Network (LCN) Fund projects has proven that businesses are willing to participate in Demand Side Response. One of the strong attractions of the scheme is the personal relationship that the business is able to build with their representative from their DNO. Businesses appreciate having a named personal contact that can provide accurate information about any planned or unplanned outage at any time. For this type of scheme to be replicable in a Business-As-Usual environment, DNOs will need to develop closer commercial relationships with businesses. The encouragement of such relationships in the new regulatory framework is welcome.

It is likely that the needs of the industry for DSR (and therefore its value) will be significantly different in 2025 than in the next couple of years. Any changes to the regulatory and commercial framework need to consider whether they are addressing the challenges of today alone, or also trying to prepare the industry for its more long term goals.

### **3. Is current work on improving clarity around interactions between industry parties sufficient? If not, what further work is needed to provide this clarity?**

**The forum did not provide a response to this question.**

### **4. Are there any additional key challenges associated with effectively signalling the value of demand-side response to customers? If so, please identify and explain these challenges.**

#### **Response:**

There are a number of considerations that should influence the 'signal' being sent to the customer, and this suggests that a 'one size fits all' approach (e.g. the use of relatively 'blunt' Time of Use tariffs) will not be effective in all cases. These factors include:

- Which party requires a demand response: For example, the demand response required by a DNO is highly location specific. The application of a measure such as a Time of Use tariff, or control technology for certain loads, could be unnecessary in the majority of cases (i.e. where there is not a capacity issue or a constraint). The introduction of large numbers of new loads such as heat pumps and electric vehicles could increase the number of areas of the network where such control would be necessary. This is contrary to measures which have been implemented to date as 'Business as Usual' activities such as CDCM tariffs, which apply the same charges regardless of the need in a particular location. There have been successful trials of obtaining a demand response by sending a signal to customers in particular network locations, where resources have been concentrated in working with customers whose demand response has the greatest value to the DNO. In this case the customer is engaged by the party requiring demand response, rather than only receiving a signal.
- The type of signal or incentive that is suitable for the customer being targeted to provide to demand response: During the forum's discussion, a hypothetical example of engaging with a village community was discussed. In this example, an incentive which rewarded the village (e.g. by contributing to a local project or charity) may be a more effective tool in incentivising demand response behaviour to avoid local network reinforcement than a price signal received by individual customers. This requires the party seeking demand response to be flexible in their ways of working in order to gain flexibility from their customers.
- The communication received by the customer regarding demand response and its value, in addition to the specific price signal: For example, it has been shown through trial deployments of demand response with industrial and commercial (I&C) customers that they are willing to provide demand response, once the full implications and benefits are explained. Engaging with customers and building

relationships with them was cited as being important to the success of demand response trials by multiple parties during the forum event.

- How to signal customers to both increase and decrease demand: In a future scenario it is possible that a number of parties in the energy market would find it advantageous to signal the value of increased demand (e.g. storing 'excess' wind generation in thermal storage). The type of signal to be employed therefore needs to include this flexibility.

The additional challenges are therefore in adapting and tailoring signals effectively, whilst still creating an efficient market. Communicating the message around demand response and engaging with customers beyond sending a signal (such as a tariff or charge) may be as important as the signal itself and further consideration needs to be given to this.

## **5. Do you agree that signals to customers need to improve in order for customers to realise the full value of demand-side response? Does improving these signals require incremental adaptation of current arrangements, or a new set of arrangements?**

### **Response:**

The engagement of customers in demand side response will involve more than the communication of signals. Customer understanding of the electricity industry, the various parties involved and their responsibilities is relatively low. Some understanding of these issues will be necessary before more complex matters, such as the value of demand side response can be communicated. The 'message' to the customer needs to be consistent from all parties involved and appropriately targeted according to the audience (e.g. different measures for industrial, commercial and the various categories of domestic customers).

There have been some attempts (e.g. within LCN Fund trials) to take the existing arrangements used in order to obtain demand response for one party and apply these to another. For example, taking the ancillary services model from the system operator and adapting this to DNOs. A view was expressed by the forum that whilst such sharing of approaches can be beneficial, new services should also be developed that build on the existing strengths and purpose of the organisations involved- for a DNO this is primarily concerned with efficiently connecting customers to the distribution network, and keeping them connected. Engagement with customers on the basis of enabling them to connect their new loads whilst avoiding costly reinforcement by providing demand response (e.g. through the use of non-firm contracts) is seen as advantageous because it builds upon the DNOs prime purpose.

The Forum highlighted the difficulties contracting for DSR with commercial companies either in multi-occupancy buildings, or in buildings that they do not own. This could be a particular issue when a single landlord owns many buildings in a concentrated area. The co-operation of two parties – the landlord and the occupier - is required.

## **6. To what extent can current or new arrangements better accommodate cross-party impacts resulting from the use of demand-side response?**

### **Response:**

Throughout the forum's discussions the need for various parties in the energy industry (and beyond) to work together and communicate a consistent message to customers were stressed. The differing requirements of these parties were also acknowledged (e.g. the value of DSR to a DNO is extremely location specific, in contrast to the value of DSR to the System Operator).

Cross-party impacts were discussed which can become barriers for the adoption of demand response measures. Some of these impacts come from outside of the immediate energy industry, such the influence of building regulations (and specifically Standard Assessment Procedure (SAP) scoring) on the adoption of low carbon technologies, and considering the value of DSR within these. New arrangements or alterations to current arrangements should be considered to remove these barriers involving the direct experience of the electricity industry with bodies whose actions impact on the deployment of DSR technologies.

The fragmented value chain within the electricity industry could lead to inconsistency in the message delivered. Different parties will potentially be requiring DSR to provide solutions to different problems, and therefore be looking to differing schemes. Care must be taken that the message from the different parties does not conflict.

The Forum expressed concern about the potential for future developments that could see products introduced by participants in the industry that indirectly could cause problems for other parties in the electricity industry. These problems could occur for example because a product has a particularly high take up in a location causing stress to the network.

## **7. Are there any additional key challenges associated with customer awareness and access to opportunities around demand-side response?**

### **Response:**

The Demand Side Response message will be difficult to explain to consumers because different parts of the electricity industry have different requirements. Different bespoke schemes will be offered in different locations and some communities or companies may be able to benefit while others will not. Schemes may be available or mandatory for consumers with certain appliances. Time of Use tariffs may be offered by Energy Suppliers. Under some circumstances and in specific locations we may want to encourage local consumers to use more electricity at a particular time (for example on a feeder with a high concentration of PV, or on a particularly windy day). Yet it is important that a national message that covers the requirements of the whole industry, and that the whole industry subscribe to is presented. There is a challenge in communicating this varied message and this requires careful consideration.

International experience of promoting behaviour change in electricity usage suggests that it is easier to change consumer behaviour at the point that they get a new

appliance. It is therefore important to target consumers at the point that they purchase an electric vehicle or heat pump. Before purchase it must be ensured that the appliance is capable of DSR, and once they get the appliance home the consumer must get into the habit of using the appliance in the most network and system efficient fashion, e.g. pre-enrolled on a mandatory electricity tariff that encourages responsible behaviour. The early introduction of this type of measure is particularly important because the more quickly consumers come to associate a particular technology with a tariff, the more 'second nature' this will become, increasing consumer acceptance of such arrangements (e.g. as can be seen in the original roll out of storage heaters with Economy 7). In addition there is already evidence of the clustering effect of technologies. There is anecdotal evidence of the planned installation of 2,000 heat pumps in a city centre location. Without some form of Demand Side Management this could potentially cause problems to the local distribution network.

UK experience, for instance, from promoting recycling suggests that a prolonged multi-channel approach is required. For example, the foundation for such an approach must come through educating school children about the electricity industry and the issues surrounding the generation, transmission and distribution of electricity within the context of the Low Carbon Challenge. This should be supported by messages and incentives from elsewhere such as central and local government and the industry.

The Forum expressed a concern that it was important that they could rely on the provision of the demand reduction they had contracted for, when this was called upon.

## **8. Is any additional work needed to explore the role of third parties in helping customers to access and assess demand-side response offerings?**

### **Response:**

Although third parties can be successful in other parts of the world, and have had success promoting national Demand Side Response schemes, they have had limited success in LCNF trials recruiting relevant commercial participants for DNOs, (although noting that these trials are still on-going). DNOs are only interested in promoting DSR to businesses located in specific areas, and are looking to promote tailored schemes. Companies have responded to the ability to form a relationship with their DNO. This experience suggests that third parties may find it difficult to provide services for DNOs where locational issues are important.

DNOs may seek to introduce DSR style arrangements with a new customer wanting a connection. Under these circumstances they could manage the relationship themselves rather than via a third party as they are already in dialogue with the customer regarding the new connection.

DNOs would only be interested in creating a relationship with specific localised customers. They could manage this relationship via a community group such as a Parish Council or Community Action Group. Reward options could be offered.



**9. Are there additional preconditions for delivering the right environment for demand-side response? If so, please explain what these are and why they are important, as well as attaching a priority relative to those challenges we have already identified.**

**Response:**

The Forum believes that priority should be given to increasing understanding of the electricity industry, including the generation, transmission and distribution of electricity within the context of the low Carbon Challenge, with consumers as a whole but also within Government at all levels, and the building industry (including those who help specify building regulations). This needs to be a high priority because of the length of time that will be required to spread the message, reinforce it and achieve a high level of understanding of the issues connected with electricity use.

It is also important that consideration is given to providing financial assistance to the development of new technologies that will help automate Demand Side Reduction, and that these technologies are promoted for installation in newly built homes as appropriate. Consideration should also be given to any legal or health and safety implication of issues with technology used for DSR, or provided and owned by a third party in a domestic home for DSR purposes, especially since by the nature of DSR these appliances could be used without supervision.

**10. Do you agree with the priority and timing we have attached to addressing each of the key challenges identified above?**

**Response:**

Urgent attention should be given to promoting Demand Side Management schemes to anybody installing either a Heat Pump or Electric Vehicle. Such schemes should be either recommended to reduce running costs, or mandatory. Anecdotes suggest that these technologies are developing in clusters which could cause network complications.

Demand Side Response schemes for the domestic population at large which are not targeting specific new and potentially disruptive loads (e.g. heat pumps and electric vehicles) are unlikely to be applicable or attractive to the majority of consumers for over a decade. Time of Use tariffs have been marketed before with limited success and for the majority of customers little has changed that would make them more likely to sign up to them now. It is important that in the intervening period, as we move to a time when Time of Use tariffs will become more cost effective and therefore appealing to customers, attention is given to a unified industry wide message which should be promoted in schools and other media to promote a better understanding of the energy use and of the electricity industry.