Ofgem

Creating the right environment for demand-side response

External Consultation Response

Prepared by Honeywell

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Honeywell

Ofgem DSR Consultation

Consultation Questions

Precondition 1: Industry parties need to be confident that there is value for them in demand-side response to justify the investment
Question 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.
Question 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 future?
Question 3: Is current work on improving clarity around interactions between industry parties sufficient? If not, what further work is needed to provide this clarity?

Precondition 2: The value of demand-side response services needs to be effectively signalled to customers
Question 4: Are there any additional key challenges associated with effectively signalling the value of demand-side response to consumers? If so, please identify and explain these challenges.
Question 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?
Question 6: To what extent can current or new arrangements better accommodate cross-party impacts resulting from the use of demand-side response?

Precondition 3: Customers need to be aware of and able to access the opportunities
Question 7: Are there any additional key challenges associated with customer awareness and access to opportunities around demand-side response? If so please identify and explain these challenges.
Question 8: Is any additional work needed to explore the role of third parties in helping customers to access and assess demand-side response offerings?

Conclusion and Next Steps
Question 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.
Question 10: Do you agree with the priority and timing we have attached to addressing each of the key challenges identified above?

Honeywell Response

Introduction

Honeywell welcomes the consultation on demand-side response from Ofgem. Honeywell is a Global Company with extensive experience of working with Energy Regulators and providing tailored Demand Side Response solutions for Utilities and DSR Aggregators around the world. Indeed Honeywell's DSR solution is in wide use across the USA and being delivered at a global level, being the *first* Automated Demand Response solution to be implemented in India, China, Australia, Hawaii and the UK. Using open standards, it is also being promoted as the DSR solution of choice by the Energy Regulators in a number of these countries.

The UK historically had monopoly utility companies, which despite privatisation have maintained their access to and influence of legislators. The supply side is now dominated by a very small number of companies with common interests. Conversely, the demand side contains a multitude of companies with apparently conflicting and competing services or technologies. Whilst we continue to listen only to the loud voices of supply, we continue to waste valuable resources, poison the atmosphere and encourage the economy to stay in the doldrums.

Although the small voices of elements of the demand side are regularly lost in the noise, these are the very ones that must be heeded. Materials to improve the energy retention of the fabric of the building, the integration of distributed generation and more efficient plant and equipment are all essential.

All of these can help demand reduction and all are essential to minimise demand. However, the changes in the supply side with more weather based generation in the supply mix will result in there not being enough supply to meet demand at all times, as well as periods of excess supply, due to its inherent intermittency. This will leave the opportunity of low carbon electricity able to be generated at times of low demand to be wasted. To maximise this opportunity, Automated Demand Response is essential to adjust the peaks and troughs to suit what is available at the time.

The players in the energy market seldom have understanding of energy management at the point of use. If aggregators survive the natural resistance of the incumbents, they also lack the intimate knowledge of managing buildings. Sadly, those managing industrial and commercial buildings tend to lack knowledge of the electricity supply market and they don't have the desire to deal in the market years in advance.

By establishing the value of reducing demand at times of high load and increasing demand at times of low load, the stress can be removed from the distribution network, also removing the need to make disruptive long term investments in new distribution infrastructure, for demand that may be short lived.

Executive Summary

The potential for Demand Side Response in the UK is significant. In July 2012, consultants Element Energy completed a report for Ofgem titled 'Demand side response in the non-domestic sector'. This study was undertaken to explore the potential for DSR in the non-domestic sector and concluded that while contributing 15GW to the daily, evening electrical demand peak, potential existed to reduce this by 1.2-4.4 GW mainly by accessing flexible electrical loads in these buildings. Coupled with industrial buildings and industrial loads, there is a significant amount of clean, flexible load available which is largely untapped and which could be utilized to address the challenges described in the Ofgem consultation paper.

Much of the DSR accessed today is fossil fuelled additional generation. We call this 'Dirty DSR'. By turning down or off or cycling electrical loads in commercial and industrial facilities, DSR can be provided which emits no carbon emissions, is reliable and can be accessed quickly with little or no impact on the building occupants or building operation. We call this 'Clean DSR'. The technology exists today to cost effectively provide clean DSR and the system operator, Utilities and DNOs have all expressed a desire to access clean DSR as they seek to meet their obligations of creating market mechanisms and solving operational challenges which contribute towards a low carbon economy.

Honeywell believes that Clean DSR should be valued above Dirty DSR and as such should receive priority when called on as well as have a higher economic value. To do this, DSR providers need to see clear and transparent pricing as they decide who and where to provide DSR and create a healthy and competitive market. DSR Aggregators need the surety of long term DSR provision to enable business models to be attractive and so long term contracts need to be offered, justifying the significant investment they need to make in a DSR solution infrastructure.

Clean DSR needs to be able to compete in the long term against infrastructure upgrade investment and clear pricing between the two needs to be signalled to DSR providers to enable financial evaluation comparisons to be made.

Specific Questions

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

Key challenges:

- Revealing the value of demand-side response across the system
- Securing delivery of demand-side response
- Clarifying interactions between industry parties

Answers to Consultation Questions 1-3

1. Currently carbon is not taken into account when valuing DSR. DSR from fossil-fuel fired generation with a high carbon emission level (Dirty DSR) is economically valued equally with demand side reduction which produces no carbon emissions (Clean DSR). We believe two main changes need to be made:
    a. Clean DSR should be given priority over Dirty DSR when called for balancing services by TSOs or load shifting by DNOs; have higher 'merit'.
    b. Clean DSR should be economically valued higher than Dirty DSR by factoring in the carbon emissions each produces.

2. 2 year STOR contracts are currently too short for DSR Aggregators to justify the significant investment in 'clean' DSR required to access the 3MW minimum provision level. To provide 3MW can entail connecting and aggregating the flexible electrical demand load from over 15 large buildings. DSR Aggregators must invest in:
    a. The IT system infrastructure required to monitor, control, action and audit DSR events
    b. The site audits, load shedding strategy design and controls required to connect buildings to the system
    c. The incentive payments the DSR Aggregator must pay building owners for their availability and participation in STOR calls.

3. Revealing the value in the system (3.20, Table 2).
    a. Settlement Arrangements (This also addresses the challenge described in Securing delivery of DSR, point 3.24)
        i. Systems do now exist which measure accurate, dynamic forward consumption profile baselines for variable baseline units such as buildings. These include on-day adjustments which enable changes in customers' actual consumption to be allowed for and accurate settlement payments made.
        ii. With industry cooperation, National Grid has recently developed and published a 'conversion factor' to be used for accessing DSR from variable baseline units and making accurate settlement payments. While this makes payment for Clean DSR achievable and practical, it does not address the challenges listed in point 2 above.
    b. Network Price Controls
    The use of DSR by DNOs to manage peak loads on near constrained networks will enable the deferment or avoidance of significant reinforcement capital investment. Additionally they can use DSR much more flexibly than simply adding larger distribution assets. DNOs will need to offer payment levels that ensure they can secure DSR when they need it, ensuring providers come out of other DSR programmes. When compared to the cost of traditional reinforcement/MW, DNOs should be in a good position to do this. However, as it is a peak load issue, the problem for DNOs will tend to be seasonable. DNOs may typically only require DSR for the winter peak period (November – March). This could create a new market for DSR providers, offering DNOs DSR for the peak load period only.

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

Key challenges:

- Improving signals to customers
- Clarifying cross-party impacts
- Customer protection with more cost-reflective charges

Answers to Consultation questions 4-6:

1. We support the consideration of DSR by DNOs where it is more cost effective and flexible than traditional methods to resolve network constraints and defer or avoid investment. DSR must also be reliable, fast acting and ideally emit no carbon emissions. DNOs face the challenges of:
    a. Identifying the value of DSR
        i. This can be a direct financial comparison between installing new distribution capital equipment and either investing in a DSR capability or purchasing DSR services.
        ii. Recognising that DSR can be secured for limited contract periods while new assets will typically have over 40 years lives. If changes happen on the network (eg demand reduces), a DSR contract can simply be ended whilst capital equipment becomes a large stranded asset.
    b. Securing DSR provision when needed to address network issues (may be only for 2 months pa) versus other DSR programmes.

2. DSR providers such as building owners, especially very large property companies, can aggregate and offer the flexible load in their buildings to various DSR programme operators. Using IT infrastructure solutions available today, they create a virtual power plant (VPP) of 'negawatts' and can offer DSR to whoever offers them the greatest value. In this situation, market strength shifts from the DSR programme operator to the DSR provider and DSR programme operators could be asked to bid for the DSR on a competitive basis. DSR programme operators will need to be very clear about the value of DSR and be able to signal this in a consistent fashion to DSR providers which enables clear comparisons to be made.

3. The Open ADR standard is dramatically increasing the implementation of DSR resources around the world. It has recently been selected as the DSR standard by the Energy Regulators in California, Korea and Japan. This is primarily because it avoids lock-in to any single IT infrastructure provider and as a result avoids stranded assets in customers' facilities. Additionally, it doesn't replace the smart meter infrastructure but is complimentary, using the meter data to provide fast, reliant and automated access to DSR.

4. Honeywell believes that for a properly functioning DSR market to exist, transparent and visible pricing needs to be made available to the DSR providers. This will enable healthy competition to prosper to the benefit of all players in the market.

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

Key challenges. Customers need to:

- Be aware of the opportunities presented by demand-side response
- Be able to access and assess the different options available – either themselves or through a third party intermediary
- Be able to act to take up a particular option and modify their usage to secure savings – either themselves or through some form of automation.

Answers to Consultation questions 7-8:

1. Customer engagement is critical, not only for accessing new customers (DSR providers) but keeping them continuously engaged. DR Aggregators, Suppliers and DNOs have all struggled (to a degree) to obtain high recruitment rates and short enrolment periods. From our experience, few are:
    a. Developing a customer targeting & enrolment plan up-front
    b. Using a variety of marketing activities which align with the sizes and types of organisations being targeted
    c. Realising (based on international & UK experience) that holding face-to-face meetings with customers is the most effective way to engage customers due to the complex nature of the proposition
    d. Putting dedicated, experienced customer engagement teams in place to focus on building awareness and recruiting new customers

2. Third party intermediaries will play a vital role in helping customers to understand the implications of taking up offerings for demand-side response. While DSR Aggregators will seek to lead this role, intermediaries will not always have a commercial interest such as Chambers of Commerce and Local Enterprise Partnerships who will provide a valued, independent role for customers.

3. It will be important to inform DSR providers that accessing DSR is <u>not</u> about DSR programme operators or Aggregators reaching into buildings and turning load devices up, down and off. DSR provision must be based on DSR providers agreeing to offer DSR when certain status changes occur on a network. This always puts the DSR provider in control rather than the other way around. This will greatly assist take-up rates of DSR provision and address the concerns around someone else having the external ability to adjust a DSR provider's assets without their approval.

Conclusion

Three challenges that will need to be addressed as a matter of priority:

- Revealing the value of demand-side response across the system.
- Making demand-side response more secure, so that industry parties can be confident they can recoup investment needed to deliver demand-side response.
- Improving signals to customers.

Answers to consultation questions 9-10:

Honeywell agrees with the High priority attached to addressing each of the three key challenges identified above.

1. Value will need to be realized by all parties in the DSR value-chain for it to be attractive for new entrants and to maintain and sustain long term healthy growth. For this to happen, attractive incentives need to be underpinned by supportive and consistent policy.

   This will attract parties to the market necessary to make DSR successful, including DSR Aggregators, DSR providers and Technology providers & installers.

2. Long term consistency and certainty is critical for DSR players to make long term investment decisions.

3. There needs to be a clear differentiation between 'Clean' and 'Dirty' DSR. Both forms will be needed to help address issues but Clean DSR has obvious benefits from a carbon emissions perspective. Ideally, new DSR market mechanisms need to contribute towards a low carbon economy and Clean DSR does just this. In addition, it is leveraging the investment already made by building owners, making suitable industrial, commercial and public buildings in the UK a large, untapped asset. As such Clean DSR should be identified as of greater attractiveness and value when available on a one-to-one comparison with Dirty DSR.