

98 Aketon Road
Castleford
WF10 5DS

Ben Smithers
Smarter Markets
Ofgem
9 Millbank
London SW1P 3GE

28 June 2013

Dear Ben,

Creating the right environment for demand-side response: consultation response
Ref: 64/13

Northern Powergrid is the electricity distribution business for the Northeast, Yorkshire and parts of northern Lincolnshire, operating through its two licensed subsidiaries. We welcome the opportunity to respond to this consultation.

Northern Powergrid's commitment to DSR

Northern Powergrid is already closely involved both in the policy development and the practical implementation of demand-side response (DSR). We took an active role in the discussions between the Energy Network Association and Energy UK that led to the publication of the joint discussion paper¹ and in Sustainability First's Smart Demand Forum². We are also exploring the practical demonstration of DSR as part of the Customer-Led Network Revolution (CLNR) project. Further, in our business as usual activity, we are already offering flexible connection agreements to a range of generation and demand customers. Our plan for ED1 includes significant commitments for further DSR-related activity.

The CLNR research into demand-side response identified that there is an apparent "value gap" surrounding demand-side response for domestic and SME customers, suggesting that there is little value to an individual customer providing DSR but that such a service in aggregate would be of high value to the DNO. The CLNR project and our Activating Customer Engagement (ACE) project currently under development aim to understand how to close this gap and provide a useful service to distribution network operators and value to the participants. This could be through a tariff or other route such as a community reward.

Experience to date in the CLNR project is that there is a high level of interest amongst customers who have been approached to take part in trials of trial-of-use tariffs and early results are showing that customers are modifying their behaviours to shift the evening peak³. Further work, including more trials, will be needed to see whether this interest can be maintained across the broad spectrum of domestic customers, whether changed behaviour persists and whether the same interest occurs in the absence of the current safety net that customers will not lose money as a result of participating.

¹ http://www.energynetworks.org/modx/assets/files/news/publications/Smart_Demand_Response_A_Discussion_Paper_July12.pdf

² <http://www.sustainabilityfirst.org.uk/gbelec.html>

³ Our CLNR project library contains reports with initial learning from our customer participation trials (30 April 2013) - <http://www.networkrevolution.co.uk/industryzone/projectlibrary>

NORTHERN POWERGRID

is the trading name of Northern Powergrid (Northeast) Ltd (Registered No: 2906593) and Northern Powergrid (Yorkshire) plc (Registered No: 4112320)

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Over the next 10 years, our focus on domestic and SME DSR will likely be on further trials to refine our understanding of customer behaviour, to obtain better data on the cost-effectiveness of this smaller-scale DSR compared with alternatives, to work with suppliers to introduce appropriate tariffs where these have been proven to provide network benefits and suppliers to introduce appropriate appliances. Essentially, we see that in the short to medium term we will continue to find new and better ways to tap into this valuable resource with a view to increasingly implementing more DSR to match the rising as more low-carbon technologies are connected to our network.

We are developing tariffs that encourage peak demand management, collaborating with other parties as necessary. We intend to introduce these from 2015 for half-hourly-metered customers and from 2020 for domestic/SME customers in line with the completion of the smart metering roll-out. Energy suppliers' support will be necessary for this to be successful and we expect to increasingly

Our business plan for 2015-23⁴ details how we will assist our customers in reviewing their power requirements to identify the most appropriate and cost-effective solution to connecting them to our network.

- We will consistently offer our customers innovative solutions where these are a cheaper, faster alternative to traditional reinforcement for industrial and commercial (I&C) connection requests. Examples include:
 - flexible connection arrangements, such as a load- or generation-management schemes, and voltage-constrained connections; and
 - real-time thermal ratings for intermittent generation connections will be available early in 2015-23. This will enable us to uprate the capacity of overhead lines.
- Where connection customers' requirements make reinforcement unavoidable, we will design the lowest-cost network solution, but, where the customer's planning horizon is sufficient, we will hold an auction calling for demand-side response from other customers whose premises are connected to the same part of the network.
- Building on availability of smart metering data and distribution substation monitoring, we will develop lower-voltage heat maps that will further assist those with choice over location of their load / generation to save costs by identifying the less constrained areas of our network. Implementation of the system will commence in the middle of the 2015-23 period.
- From 2015, we will contain and address major substation utilisation by management of the load profile to supplement traditional load transfer and reinforcement solutions, using two methods:
 - We will use third-party energy-efficiency consultants to advise customers whose premises are connected to the target network on the benefits to the customer of energy cost reductions and how they can achieve those benefits including via time-of-use tariffs and DSR. This will be targeted at medium-to-high utilisation areas as a containment measure.
 - We will conduct a reverse capacity auction (for both dynamic and static capacity reductions) via our website. We expect this to be more effective in areas where the first (energy efficiency) method has already been deployed and there is greater awareness of the opportunities.

⁴ See our plan on www.yourpowergridplan.com

Northern Powergrid's comments on the consultation paper

Ofgem's consultation paper is timely and well-argued. It provides a comprehensive analysis of the potential benefits and some of the barriers to developing a fully operational contribution from DSR. In order to take this work forward, however, it will be necessary to get a better idea of the likely value of DSR to the various industry players and the different customer groups and the timescales over which practical and economic issues will affect its development in different areas. To seek to develop a comprehensive approach that encompasses all parts of the industry and all customer groups may take many years, but this should not prevent the development of more immediate approaches between players where early opportunities arise.

DSR in the industrial and commercial (I&C) market, where DNOs have a more specific connection agreement based relationship with customers, is already ahead of the domestic market and is likely to develop faster, particularly with regard to new connections. Seen from the perspective of the distribution network, I&C customers can assist with relieving reinforcement needs at the higher voltage levels, and indeed we have had agreements to cater for this in specific locations for many years. In our 2015-23 business plan we are proposing to test the scope for DSR ahead of traditional reinforcement investment for every connection application and whenever a customer request such an option on existing load.

The domestic sector is less advanced. The value from domestic DSR to DNOs will be seen predominantly in relieving local issues at the lower voltage levels brought about by the greater use of low-carbon technologies. The DNO does not currently have a one-to-one relationship with domestic customers which is specific and direct, and either the DNO would have to create a relationship or DSR would have to be facilitated via multi-party relationships. An adequate locational incentive to encourage energy supplier participation (which Ofgem's paper suggests does not currently exist, but might be considered via the current retail market reform) might simplify the multi-party approach. The alternative approach, to create direct DNO relationships with customers or their agents, is one of the reasons Northern Powergrid has proposed the ACE project as a way of exploring whether non-tariff signals and incentives can successfully encourage DSR amongst both domestic and business customers.

Responses to the specific questions raised in the consultation are attached. If you would like any further detail please make contact.

Yours sincerely



Jim Cardwell
Head of Regulation & Strategy

Appendix 1 -Consultation Questions and proposed answers

Consultation Question	
Precondition 1 - Industry parties need to be confident that there is value for them in demand-side response which justifies the investment	
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.
	<p>DSR is not cost-free. In order to establish whether there is a net benefit in any area it is necessary to take account of the cost of implementation. This could involve items such as more advanced metering and communications systems, changes to billing systems, and the wider introduction of half-hourly settlement. Much of the debate about DSR to date has been about the potential benefits. It will be necessary to explore the costs involved to ensure positive net benefit.</p> <p>Some of the issues that DSR can help to resolve are exacerbated by the form of Government incentives for low-carbon technologies and renewable generation in that they provide a fixed sum per unit of output or consumption regardless of the time of day or season. Examples include rewarding wind generation on summer nights where an additional cost is incurred if the generation has to be constrained off. Recalibrating incentives for the Renewable Obligation and the Feed In Tariff onto a time-of-use (TOU) basis would not only reduce the problem but would help to solve it. The Government's decision to encourage electricity demand reduction through the capacity mechanism is a move in the right direction. It is not yet clear whether the strike price for the Feed In Tariff Contracts for Difference will be TOU-based. But this decision will have an important bearing on the overall cost of balancing supply and demand for electricity.</p>
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?
	<p>It is clear that DSR can provide a potential benefit to electricity customers as a whole by reducing the overall cost of providing electrical energy to their premises. But if it is to be implemented, there must be an adequate incentive to be available to both customers and industry players who need to contribute. Network companies have such an incentive through the ability to find ways that may be cheaper than traditional reinforcement and hence improving their profit within a regulatory period (with customers generally benefiting thereafter.) However the DNO does not currently have a one-to-one relationship with domestic customers which is specific and direct, and either the DNO would have to create a relationship or DSR would have to be facilitated via multi-party relationships. An adequate locational incentive to encourage supplier participation (which Ofgem's paper suggests does not currently exist, but might be considered via the current retail market reform) might simplify the multi-party approach. The alternative approach, to create direct DNO relationships with customers, is one of the reasons Northern Powergrid has proposed the Activating Customer Engagement (ACE) project as a way of exploring whether non-tariff signals and incentives can successfully encourage DSR amongst both domestic and business customers.</p>
3.	Is current work on improving clarity around interactions between industry parties sufficient? If not, what further work is needed to provide this clarity?
	<p>To seek to develop a comprehensive approach that encompasses all parts of the industry and all customer groups may take many years, but this should not prevent the development of more immediate approaches between players where early opportunities arise. Further work is therefore needed on the relative value of DSR to different industry players and different customer groups, and the development of a commercial structure that reflects this. We should</p>

	not wait until a comprehensive approach can be put in place to take advantage of potential low-hanging fruit.
Precondition 2 - The value of offering different demand-side response services needs to be signalled effectively to customers	
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.
	Nothing additional to the points raised in response to questions 1 and 2 above.
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?
	<p>Research results obtained by Ofgem in connection with retail market reform suggests that domestic customers may need more than a simple financial incentive to encourage them to respond.</p> <p>Moreover, the requirement of the DNO that DSR is contributing to is locational. This necessitates a financial or other incentive that is also locational (contrasting with the needs of the transmission system operator and energy suppliers where the location is not specific to an area). Given the current imperatives of retail market reform, it may take some considerable time before electricity tariffs that are sufficiently flexible to meet network requirements are acceptable.</p> <p>These issues underpin the reasons Northern Powergrid has proposed the Activating Customer Engagement (ACE) project as a way of exploring whether non-tariff signals and incentives can successfully encourage DSR amongst both domestic and non-domestic customers.</p>
6.	To what extent can current or new arrangements better accommodate cross-party impacts resulting from the use of demand-side response?
	<p>Further work is needed to establish the relative value of DSR to different industry players and the development of a commercial structure that reflects this. It may be the case that in some areas DNOs need to forgo the ability of using DSR themselves and revert to traditional reinforcement methods in order to permit customers to offer higher value DSR to other industry players, such as generators or National Grid. And on some occasions the opposite may be true where the value to a DNO is higher than to the other industry participant. There is a relatively healthy level of cross-party dialogue to explore these issues and this should continue.</p> <p>Distribution services form a relatively small part of the electricity bill (typically 16%) in comparison to the total energy costs. Therefore, if DSR could reduce energy production costs by 1%, this would be more valuable to the customer paying the bill than reducing distribution costs by 4%. However to reduce energy production costs might require the ability to use (or indeed store) the energy fully whenever it were being produced cheaply, e.g. windy days. And this might require a stronger more heavily reinforced distribution system to achieve this. It is clearly necessary to take a holistic view of the energy market to understand where and how the greatest benefit can be achieved; chasing benefit in all areas may be counterproductive.</p>
Precondition 3 - Customers need to be aware of the opportunities to provide demand-side response, able readily to access information on options and able to act.	
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.
	Domestic customers have become used to having an electricity supply when and where they want. They want simpler tariff structures. They do not trust energy suppliers, and, although some customers may be motivated to change behaviour by environmental considerations, many others do not see this or helping to manage the electricity system as their problem. The

	<p>learning from our CLNR project has been clear - the majority of customers are encouraged to change their energy use in return for savings in their bills as opposed to reducing carbon emissions. Achieving DSR at scale with domestic customers will need adequate incentives, customers to be interested in the issue and the encouragement of a change in attitude towards electricity use. This will be achieved through industry collaboration. It will be necessary for customer to understand the benefits. The national smart meter roll-out will be an important communication opportunity for the industry to engage better with domestic and small business customers.</p>
8.	<p>Is any additional work needed to explore the role of third parties in helping customers to access and assess demand-side response offerings?</p>
	<p>Third parties, such as aggregators, can help with encouraging customers to take part in DSR. Northern Powergrid's experience in working with aggregators in the Customer-Led Network Revolution project is that they have a fresh approach, can spend the time to assist customers change their behaviour and may have the ability to combine numerous customer responses into a statistically dependable package. But if aggregators are to expand this role, they need to be able to make a margin from this work. The wider involvement of aggregators in the electricity market would increase the need for them to be subject to regulatory scrutiny.</p>
9.	<p>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.</p>
	<p>To seek to develop a comprehensive approach that encompasses all parts of the industry and all customer groups may take many years, but this should not prevent the development of more immediate approaches between players where early opportunities arise. We should not therefore try to solve all the problems at once. In consultation with all parts of the industry, including aggregators and independent generators and suppliers, Ofgem should seek to develop a journey plan to ensure that the right instruments are delivered at the right time to meet genuine needs cost-effectively.</p>
10.	<p>Do you agree with the priority and timing we have attached to addressing each of the key challenges identified above?</p>
	<p>DSR in the industrial and commercial (I&C) market, where DNOs have a more specific connection agreement based relationship with customers, is already ahead of the domestic market and is likely to develop faster, particularly with regard to new connections. Seen from the perspective of the distribution network, I&C customers can assist with relieving reinforcement needs at the higher voltage levels, and indeed we have had agreements to cater for this in specific locations for many years. In our business plan we propose to test the scope for DSR ahead of traditional reinforcement investment for every connection application and whenever a customer request such an option on existing load.</p> <p>The domestic sector is less advanced. The value from domestic DSR to DNOs will be seen predominantly in relieving local issues at the lower voltage levels brought about by the greater use of low-carbon technologies. The DNO does not currently have a one-to-one relationship with domestic customers which is specific and direct (except during power cuts, connections or other occasional interactions such as planned power interruptions for maintenance), and either the DNO would have to create more of a relationship or DSR would have to be facilitated via multi-party relationships. An adequate locational incentive to encourage energy supplier participation (which Ofgem's paper suggests does not currently exist, but might be considered via the current retail market reform) might simplify the multi-party approach. The alternative approach, to create direct DNO relationships with customers or their agents, is one of the reasons Northern Powergrid has proposed the Activating Customer Engagement (ACE) project as a way of exploring whether non-tariff signals and incentives can successfully encourage DSR amongst both domestic and non-domestic customers.</p>

	<p>In consultation with all parts of the industry, including aggregators and independent generators and suppliers, Ofgem should therefore seek to develop a journey plan to ensure that the right instruments are delivered at the right time to meet the most valuable needs cost-effectively.</p>
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