



BEIS Consultation Co-ordinator  
3 Whitehall Place  
London  
SW1A 2AW

12<sup>th</sup> January 2017

Dear Sir/Madam,

Our industry is in the midst of really exciting change. It is change however, that poses both opportunities as well as risks. We believe this consultation is an important process in helping how our industry works, so wished to put forward our response.

Utilidex is a digital software company. Our mission is to revolutionise the way our customers buy, sell and optimise their energy. Uniquely, we provide our digital energy products to a number of participants in the supply chain, ranging from energy generators (like Viridor), energy retailers (like Flow Energy) and corporates (like Aviva). We are growing rapidly, and will add a number of additional very large blue chip customers this quarter.

Our team have developed a number of leading technology solutions including trading & risk systems, business systems that interface to SCADA, customer billing and settlements systems as well as metering and billing systems for energy suppliers. Furthermore, we are fortunate to work alongside some very innovative partners, such as Microsoft and Level39, Europe's largest technology accelerator. We've gained wide experience in delivering technology products which include Artificial Intelligence-based demand forecasting and inter-operation with Enabled Devices (IoT).

Our Hub solution links Suppliers, Customers and Data Aggregators together to facilitate a more dynamic billing opportunity. This we believe, is the bedrock for accurate, real-time billing opportunities which will facilitate the rollout of more dynamic grid services in intermittent energy, storage and the trading of demand flexibility. All stages of our product deployment have provided customers with better insight, greater options and more value.

We are responding to your call for evidence on Smart, Flexible Energy Systems since it reflects the strong interest our customers have, in the direction of innovation in the UK energy market. We believe that our perspective and experience are relatively unusual, and are confident that we have a good understanding of how a Flexible System can be rapidly developed and deployed in order to drive Customer value.

More detailed information can be found about Utilidex on [www.utilidex.com](http://www.utilidex.com)

**Utilidex Limited**

A handwritten signature in black ink, appearing to read "Mike McCloskey".

Mike McCloskey

**Director & Co-Founder**

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Consultation questions	Utilidex answers
<p><b>Questions: Enabling storage</b></p>	<p>We understand that storage can be of significant advantage to both commercial users and network operators. Our system quantifies that opportunity against the current and forward cost curve and provides evidence based support for investment in energy storage on a case by case basis.</p>
<p>1. Have we identified and correctly assessed the main policy and regulatory barriers to the development of storage? Are there any additional barriers faced by industry? Please provide evidence to support your views.</p>	
<p>2. Have we identified and correctly assessed the issues regarding network connections for storage? Have we identified the correct areas where more progress is required? Please provide evidence to support your views.</p>	
<p>3. Have we identified and correctly assessed the issues regarding storage and network charging? Do you agree that flexible connection agreements could help to address issues regarding storage and network charging? Please provide evidence to support your views, in particular on the impact of network charging on the competitiveness of storage compared to other providers of flexibility.</p>	<p>Any changes to the structure of network charging can easily and quickly be reflected by our system although we recognise older legacy systems have less tariff rate flexibility.</p> <p>In our view the network cost to the customer should be a charge based on the real and actual cost to the end customer. This will permit the customer to invest in ways to reduce consumption where networks are constrained or look at alternatives to go off grid at peak times using the latest technologies available.</p> <p>Regulators should also heed that investments in such technology are quite often made over a long term duration and the payback can be a lot longer than the current regulatory price regime.</p> <p>So these investments need some form of guarantee or protection.</p>

Consultation questions	Utilidex answers
	Likewise, networks need protection for long term investments in infrastructure with high capital costs and similarly need some form of guarantee or protection post investment.
4. Do you agree with our assessment that network operators could use storage to support their networks? Are there sufficient existing safeguards to enable the development of a competitive market for storage? Are there any circumstances in which network companies should own storage? Please provide evidence to support your views.	We are in early stage discussion with DNOs and expect to see the roll out of some commercial scale contracts between them and commercial consumers for network support through storage within 12-24 months. We don't see any reason why a network should not own a storage facility to support cost avoidance in the future and the lowering of peak demand where there are bottlenecks.
5. Do you agree with our assessment of the regulatory approaches available to provide greater clarity for storage? Please provide evidence to support your views, including any alternative regulatory approaches that you believe we should consider, and your views on how the capacity of a storage installation should be assessed for planning purposes.	
6. Do you agree with any of the proposed definitions of storage? If applicable, how would you amend any of these definitions? Please provide evidence to support your views	
<b>Questions: Aggregators</b>	<p>Utilidex does not act as an aggregator; we support a range of aggregation service provider(s) and in particular will provide the audit trail to support energy saving schemes or gain-share agreements for Aggregators so they are held to account for savings.</p> <p>In some cases we anticipate that larger energy consumers will separate provision of energy supply from aggregation service providers and may contract directly with DNOs and National Grid for the provision of ancillary services.</p>

Consultation questions	Utilidex answers
<p>7. What are the impacts of the perceived barriers for aggregators and other market participants? Please provide your views on: · balancing services; · extracting value from the balancing mechanism and wholesale market; · other market barriers; and · consumer protection. Do you have evidence of the benefits that could accrue to consumers from removing or reducing them?</p>	<p>We can see that the business case for offering network support services to DNOs as well as to TNOs is positive step and ultimately reduces cost to the end-consumer. Aggregators have a part to play in this, as do large end customers and I and C suppliers with embedded generation.</p> <p>If end customers are well placed to reduce balancing risk of their suppliers and the local grid/renewable generation fleet, then they should be encouraged to do this and we see little impediment for forward think suppliers and aggregators to do just this.</p> <p>This might mean that in the future end users will no longer just purchase the commodity but also added value services, and the more forward thinking suppliers and aggregators will provide visibility to the value these services capture.</p> <p>Further it is also important that networks have the ability to offer services particularly in areas where there are constraints.</p> <p>Again the costs/benefits of such schemes need to be understood and customers given the option to take on these services or do it for themselves.</p>
<p>8. What are your views on these different approaches to dealing with the barriers set out above?</p>	<p>We believe that as the services used in a smart energy system evolve, so will the complexity of controlling and quantifying their value.</p> <p>Independent measurement and valuation of services will build trust between counterparties and should accelerate adoption.</p>
<p>9. What are your views on the pros and cons of the options outlined in Table 5? Please provide evidence for your answers.</p>	

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<p>10. Do you agree with our assessment of the risks to system stability if aggregators' systems are not robust and secure? Do you have views on the tools outlined to mitigate this risk?</p>	
<p><b>Questions: System value pricing</b></p>	<p>The complexity of today's charging regime is hidden from consumers because it is billed monthly not in real time. Legacy billing systems often take an "averaging" approach to charges, hiding the opportunity to avoid particularly expensive periods in the day/week/year. This hides the commercial opportunity in flexibility.</p> <p>As services evolve it is almost inevitable that charging structures will become more complex; we cannot see that these structures will have the desired effect without fully accurate and transparent near real time billing.</p>
<p>11. What types of enablers do you think could make accessing flexibility, and seeing a benefit from offering it, easier in future?</p>	<p>Utilidex are already providing some large commercial customers quantification and visibility of the value of flexibility.</p> <p>We are finding very strong engagement, facilitated by our accurate and high resolution of real wholesale costs/residual costs and network charges.</p> <p>This is just one example and we would suggest there are many other technology "enablers" to encourage a smarter way of working.</p>
<p>12. If you are a potential or existing provider of flexibility could you provide evidence on the extent to which you are currently able to access and combine different revenue streams? Where do you see the most attractive opportunities for combining revenues and what do you see as the main barriers preventing you from doing so?</p>	<p>We work with a few of third party integrators and providers of demand response services providing energy cost transparency. Most have different revenue streams because they specialise in different NG schemes and have different solutions which is great and complementary.</p> <p>Ultimately we see one of the most effective ways to encourage flexibility is by also letting the wholesale market work and provide price signals to</p>

Consultation questions	Utilidex answers
	<p>participants. The UK with its continuous energy market rather than pool market mechanism actually provides unique on the day opportunities which other market regimes don't have.</p> <p>Further we see large variations in opportunity between DNO regions across the 12,000 or so network tariffs, and can identify very well defined spikes in charging costs, which can be anticipated and avoided if understood. Assuming these cost differences remain this should also drive the need for flexibility.</p>
<p>13. If you are a potential or existing provider of flexibility are there benefits of your technology which are not currently remunerated or are undervalued? What is preventing you from capturing the full value of these benefits?</p>	
<p>14. Can you provide evidence to support any changes to market and regulatory arrangements that you consider necessary to allow the efficient use of flexibility. What might be the Government's, Ofgem's, and System Operator's roles in making these changes?</p>	
<p><b>Questions: Smart tariffs</b></p>	<p>Our system does not differentiate between monthly and half-hourly billing. We expect the latter to become the norm and do not see any barrier to billing more complex tariff structures.</p>
<p>15. To what extent do you believe Government and Ofgem should play a role in promoting smart tariffs or enabling new business models in this area? Please provide a rationale for your answer, and, if you feel Government and Ofgem should play a role, examples of the sort of interventions which might be helpful.</p>	

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<p>16. If deemed appropriate, when would it be most sensible for Government/Ofgem to take any further action to drive the market (i.e. what are the relevant trigger points for determining whether to take action)? Please provide a rationale for your answer.</p>	<p>We see strong interest from commercial users in more advanced tariff structures, we believe that government's best role is to guard against anti-competitive reaction to their adoption by imposing tariff frameworks for the energy component.</p> <p>Instead the generator/supplier/customer relationship needs to become more collaborative and real-time and we see this naturally evolving and more modern technologies replace legacy systems.</p>
<p>17. What relevant evidence is there from other countries that we should take into account when considering how to encourage the development of smart tariffs?</p>	
<p>18. Do you recognise the reasons we have identified for why suppliers may not offer or why larger non-domestic consumers may not take up, smart tariffs? If so, please provide details, especially if you have experienced them. Have we missed any?</p>	<p>We do recognise the barriers on p51 of the consultation document. Our experience is that commercial users understand that bundled billing can be a barrier, and that they are using our platform and other means to overcome these issues.</p> <p>However, in some cases we also understand why certain customers who have little or no flexibility or optionality on how they consume energy may wish for a bundled bill to reduce complexity and ease of contract management.</p> <p>Best neither to mandate one or the other but let the market decide.</p>

Consultation questions	Utilidex answers
<p><b>Questions: Smart distribution tariffs: Incremental change</b></p>	
<p>19. Are distribution charges currently acting as a barrier to the development of a more flexible system? Please provide details, including experiences/case studies where relevant.</p>	<p>Distribution charges are not documented by most energy billing systems in sufficient detail to support changes in behaviour or investment decision.</p> <p>Commercial consumers broadly understand the magnitude and time-dependency of such charges and are using our system and others' services to understand how to avoid peak period charging.</p> <p>Given better clarity of the level of DNO and TNO charges, we believe that basing charging on maximum demand periods remains economically sound.</p> <p>Further although we acknowledge that DNOs and IT companies who support DNOs/NG may wish to migrate to a more fluid pricing mechanism to encourage DSR we feel that the costs of this may outweigh the benefits of consumers just managing their own flexibility based on known tariff structures and making their own investments.</p> <p>At all times the total cost of the change programme needs to be carefully understood and end customers should have a say in this alongside entities with full time regulatory departments.</p>
<p>20. What are the incremental changes that could be made to distribution charges to overcome any barriers you have identified, and to better enable flexibility?</p>	<p>Better communication of the opportunity to end customers would be a great start and we feel it would be a good step for Ofgem and industry to take on board the views of large and mid-sized consumers of energy as well as those of suppliers and grids.</p>

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<p>21. How problematic and urgent are any disparities between the treatment of different types of distribution connected users? An example could be that in the Common Distribution Charging Methodology generators are paid 'charges' which would suggest they add no network cost and only net demand.</p>	
<p><b>Questions: Smart distribution tariffs: Fundamental change</b></p>	<p>Utilidex has a database for all distribution tariffs and when these tariffs change then we update the system automatically for our customers.</p>
<p>22. Do you anticipate that underlying network cost drivers are likely to substantively change as the use of the distribution network changes? If so, in what way and how should DUoS charges change as a result?</p>	
<p>23. Network charges can send both short term signals to support efficient operation and flexibility needs in close to real time as well as longer term signals relating to new investments, and connections to, the distribution network. Can DUoS charges send both short term and long term signals at the same time effectively? Should they do so? And if so, how?</p>	
<p>24. In the context of the DSO transition and the models set out in Chapter 5 we would be interested to understand your views of the interaction between potential distribution charges and this thinking.</p>	<p>We expect the relative cost of clean technologies to drop and their rate of deployment of clean tech to increase. We also expect the optimal/fair structure for charging DSO services to also evolve.</p> <p>Future charging systems must reflect real costs and also must incentivise new investment in technology.</p> <p>The UK market mechanism is in effect in competition with other national systems and investors will go to locations where there is certainty in long term returns for what are complex investments.</p>

Consultation questions	Utilidex answers
<b>Questions: Other Government policies</b>	
25. Can you provide evidence to show how existing Government policies can help or hinder the transition to a smart energy future?	
26. What changes to CM application/verification processes could reduce barriers to flexibility in the near term, and what longer term evolutions within/alongside the CM might be needed to enable newer forms of flexibility (such as storage and DSR) to contribute in light of future smart system developments?	
27. Do you have any evidence to support measures that would best incentivise renewable generation, but fully account for the costs and benefits of distributed generation on a smart system	
<b>Questions: Smart appliances</b>	Utilidex system can link up to sensors, smart appliances and beacons, data can securely be retrieved either via PC, tablet and mobile phone.
28. Do you agree with the 4 principles for smart appliances set out above (interoperability, data privacy, grid security, energy consumption)? · Yes · No (please explain)	
29. What evidence do you have in favour of or against any of the options set out to incentivise/ensure that these principles are followed? Please select below which options you would like to submit evidence for, specify if these relate to a particular sector(s), and use the text box/attachments to provide your evidence. · Option A: Smart appliance labelling · Option B: Regulate smart appliances · Option C: Require appliances to be smart · Other/none of the above (please explain why)	

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<p>30. Do you have any evidence to support actions focused on any particular category of appliance? Please select below which category or categories of appliances you would like to submit evidence for, and use the text box/attachments to provide your evidence: · Wet appliances (dishwashers, washing machines, washer-dryers, tumble dryers) · Cold appliances (refrigeration units, freezers) · Heating, ventilation and air conditioning · Battery storage systems · Others (please specify)</p>	
<p>31. Are there any other barriers or risks to the uptake of smart appliances in addition to those already identified?</p>	
<p>32. Are there any other options that we should be considering with regards to mitigating potential risks, in particular with relation to vulnerable consumers</p>	
<p><b>Questions: Ultra Low emission vehicles</b></p>	
<p>33. How might Government and industry best engage electric vehicle users to promote smart charging for system benefits?</p>	
<p>34. What barriers are there for vehicle and electricity system participants (e.g. vehicle manufacturers, aggregators, energy suppliers, network and system operators) to develop consumer propositions for the: · control or shift of electricity consumption during vehicle charging; or · utilisation of an electric vehicle battery for putting electricity back into homes, businesses or the network?</p>	
<p>35. What barriers (regulatory or otherwise) are there to the use of hydrogen water electrolysis as a renewable energy storage medium</p>	

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<b>Questions: Consumer engagement with Demand Side Response</b>	
36. Can you provide any evidence demonstrating how large non-domestic consumers currently find out about and provide DSR services?	
37. Do you recognise the barriers we have identified to large non-domestic customers providing DSR? Can you provide evidence of additional barriers that we have not identified?	
38. Do you think that existing initiatives are the best way to engage large non-domestic consumers with DSR? If not, what else do you think we should be doing?	
39. When does engaging/informing domestic and smaller non-domestic consumers about the transition to a smarter energy system become a top priority and why (i.e. in terms of trigger points)?	
<b>Questions: Consumer protection and cyber security</b>	
40. Please provide views on what interventions might be necessary to ensure consumer protection in the following areas: · Social impacts · Data and privacy · Informed consumers · Preventing abuses · Other	
41. Can you provide evidence demonstrating how smart technologies (domestic or industrial/commercial) could compromise the energy system and how likely this is?	

Consultation questions	Utilidex answers
<p>42. What risks would you highlight in the context of securing the energy system? Please provide evidence on the current likelihood and impact.</p>	
<p><b>Questions: Roles and responsibilities</b></p>	
<p>43. Do you agree with the emerging system requirements we have identified (set out in Figure 1)? Are any missing?</p>	
<p>44. Do you have any data which illustrates: a) the current scale and cost of the system impacts described in table 7, and how these might change in the future? b) the potential efficiency savings which could be achieved, now and in the future, through a more co-ordinated approach to managing these impacts?</p>	
<p>45. With regard to the need for immediate action: a) Do you agree with the proposed roles of DSOs and the need for increased coordination between DSOs, the SO and TOs in delivering efficient network planning and local/system-wide use of resources? b) How could industry best carry these activities forward? Do you agree the further progress we describe is both necessary and possible over the coming year? c) Are there any legal or regulatory barriers (e.g. including appropriate incentives), to the immediate actions we identify as necessary? If so, please state and prioritise them.</p>	
<p>46. With regard to further future changes to arrangements: a) Do you consider that further changes to roles and arrangements are likely to be necessary? Please provide reasons. If so, when do you consider they would be needed? Why? b) What are your views on the different models, including: i. whether the models presented illustrate the right range of potential arrangements to act as a basis</p>	

Consultation questions	Utilidex answers
<p>for further thinking and analysis? Are there any other models/trials we should be aware of? ii. which other changes or arrangements might be needed to support the adoption of different models? iii. do you have any initial thoughts on the potential benefits, costs and risks of the models?</p>	
<p><b>Questions: Innovation</b></p>	
<p>47. Can you give specific examples of types of support that would be most effective in bringing forward innovation in these areas?</p>	
<p>48. Do you think these are the right areas for innovation funding support? Please state reasons or, if possible, provide evidence to support your answer.</p>	