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Dear Harpal

Promoting smarter energy markets

Thank you for the opportunity to respond to the above consultation. This response should be regarded as a consolidated response on behalf of UK Power Networks' four electricity distribution licence holding companies: Eastern Power Networks plc, London Power Networks plc, South Eastern Power Networks plc, and UK Power Networks (IDNO) Ltd. I can confirm that this response is non-confidential and can be published via the Ofgem website.

We are in broad agreement with the content of this document, however we wish to stress that the extent to which customers are willing to participate in electricity markets either through time-of-use tariffs or through demand response programmes is currently uncertain, although this is being tested in a number of projects within the remit of Ofgem's Low Carbon Networks Fund Tier 2 mechanism. This uncertainty needs to be taken in to account when designing future electricity markets to ensure sufficient contingency is built in during the transition to a more flexible electricity system. We also wish to highlight the need for all parts of the electricity value chain (generation, transmission, distribution, retail and metering) to work together in order to achieve this transition in the most cost effective manner possible, such that consumers benefit from a 'whole system' approach to optimisation.

Our responses to the detailed questions and propositions posed by the above consultation are set out in the appendix. We trust that you will find our views helpful, if you have any questions about our response, please do not hesitate to contact me.

Yours faithfully

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Appendix

Chapter 3

Proposition 1 – Time-of-use tariffs should help many consumers lower their energy costs, but improved engagement will be needed to help all consumers make informed choices.
Whilst we agree generally with this proposition, it is important to recognise that time-of-use tariffs may also increase electricity bills for individual consumers if they are unable to reduce their consumption at peak times. Some consumers will not have the inherent lifestyle flexibility to enable them to take advantage of lower off peak tariffs, for example families with young children requiring the use of an electric cooker during evening peaks. We therefore suggest that widespread demand flexibility is unlikely to occur until such flexibility is made convenient through home automation and/or smart appliances. Whilst we firmly believe that truly cost-reflective time-of-use-tariffs are the way forward, it will be important to ensure that consumers who have less flexibility in their ability to change their energy usage behaviour (and who perhaps are not in a position to afford home automation systems and/or smart appliances) are protected against sharp increases in fuel bills.

Proposition 2 – More efficient use of demand-side response can lower overall energy costs, but this will need coordinated changes to regulatory and commercial arrangements.
We agree that more efficient use of demand side response will lower costs, but only if it is possible to aggregate the value derived by individual parts of the electricity value chain. Network operators would like to be able to offer incentives to consumers to reduce demand at peak times, thereby enabling them to free-up network capacity (for example to accommodate electric vehicles) or avoid network reinforcement costs. However these incentives may not be sufficient to finance the automation of demand flexibility or home electricity storage. In order to ensure demand flexibility is developed in a way that enables a more cost effective transition to a low carbon economy, we believe that attention must be paid to potential regulatory barriers that do not encourage leveraging the total system value of demand flexibility.

Proposition 3 – Innovation in energy services would increase the consumer benefits of smart metering and can happen without major change to the regulatory framework.
We agree that innovation in energy services will increase consumer benefit by providing consumers with greater choice, but we are uncertain as to whether the benefits can be fully exploited within the current regulatory framework, as the cost-effective provision of choice might be hampered by the disaggregation of the electricity value chain as described above.

Proposition 4 – Consumers will have more payment options, without changes to regulatory arrangements beyond those envisaged as part for the smart metering roll-out
Whilst we agree with this proposition, it will be important to ensure that the smart metering roll-out programme gives the necessary priority to ensuring that the needs of prepayment (or pay as you go) consumers are catered for in a timely manner. It will be particularly important to ensure that smart metering system pre-payment functionality and interoperability (i.e. so that prepayment consumers have the same freedom to change supplier) is given appropriate priority in the overall programme.

Propositions 1 to 4 – additional comments

Whilst the document identifies that demand flexibility has different usage across the electricity value chain, it does not identify the temporal nature of the value of demand response on different parts of the electricity value chain. In the future, demand response will have different values in different parts of the value chain depending on distribution, transmission and generation constraints. We believe that thought needs to be given to optimising demand response value for total system benefit, understanding the potential conflicts and synergies. For example, suppliers might in future wish to encourage higher electricity usage on days when wind generation output is expected to be high whereas both transmission and distribution network operators might prefer a more even day-to-day distribution of demand.

One approach would be for suppliers to offer lower day-ahead tariff rates for the period during the following day when wind speeds are predicted to be high. However, if this period were to coincide with the normal time of peak demand on the network, this could well create a higher network peak demand and potentially trigger network reinforcement. To counteract this, the network operator might wish to implement a more cost-reflective charging regime by introducing a higher use-of-system charge during peak demand periods.

In this example, there is a clear conflict between the network operator's and supplier's objectives, both of which however are legitimate when considered in isolation. Generally, a cost-reflective energy charge will outweigh a cost-reflective use-of-system charge and hence it might be difficult to cost-optimise network reinforcement as a result. At other times there will be synergies between supplier and network operator objectives, such as when wholesale electricity costs are high and suppliers would like to reduce demand at times coinciding with network peaks. We believe that these conflicts and synergies need to be understood when setting expectations about individual parts of the electricity value chain being able to move to a low carbon economy in the most cost optimised manner.

Finally, we believe it is important to recognise the impact of a future electricity generation portfolio increasingly dominated by inflexible nuclear plant and wind generation. Limitations in our ability to forecast wind generation output, even a few hours ahead, will leave suppliers more exposed to imbalance. Meanwhile, the National Electricity Transmission System Operator will have a more difficult task in balancing the system in real time due to wind variability and less flexible base load nuclear plant. It follows that there might be a greater demand for ancillary balancing services – for example through aggregation of responsive demand to provide STOR. It is not inconceivable that, over time, aggregation of responsive demand could extend to domestic and SME consumers, including consumers with micro or mini generation. It follows that Commercial Aggregators and Virtual Power Plant Operators might be expected to become more active in procuring responsive demand for aggregation as a balancing service enabling consumers to extract even further value from exercising flexibility in their electricity usage patterns.

Chapter 4

Proposition 5 – Settlement arrangements should use actual daily (gas) and half-hourly (electricity) meter reading data in order to improve their accuracy and efficiency
We are aware of anomalies and inaccuracies arising from the current electricity settlement process which is reliant on profiling. Going forward, daily demand profiles (and seasonal variations to daily profiles) will change considerably, but in ways which we cannot accurately predict (for example how consumers will use, and hence charge, their electric vehicles). It follows that reliance on profiling is likely to become more problematic. As paragraph 4.11 points out, using actual meter readings for each half hourly settlement period should help promote competition and increase accuracy of cost allocation between suppliers. More importantly, it would enable new tariffs to be introduced to not only shift electricity away from peak times, but also to encourage demand to more closely follow the output of variable generation such as wind. It does however need to be recognised that wind following tariffs might create new or higher peak demands on networks and lead ultimately to increased costs and/or capital investment.

We believe that, over time, tariffs should become increasingly cost-reflective and whilst simple time-of-use tariffs with static time bands and rates (e.g. typically 4 band / 3 rate) might be an appropriate first step in introducing domestic and SME consumers to variable tariff rates. In the longer term there should be a transition to more dynamic forms of tariff supported by smart home technologies and/or appliances that are able to respond to pricing signals. It follows that half hourly data might over time be used to settle individual supply points on a half hourly basis.

Ultimately we would see no need for profiling; instead half hourly settlement would be based on actual half hourly reads. We appreciate that use of actual meter readings for half hourly settlement purposes will require access to half hourly consumption data from individual supply points and that this raises concerns over data privacy. However, given the benefits, we believe these concerns should be properly addressed and appropriate protection measures introduced as necessary to pave the way for half hourly settlement and more dynamic forms of tariff to be introduced.

Proposition 6 – The change of supplier process should be reliable and fast, so that customers can confidently switch supplier on a next day basis
We agree that the change of supplier process should be reliable and fast. Key to this objective, however, is ensuring that smart metering systems are technically interoperable, or are made technically interoperable as soon as practicable. Of particular concern here are smart meters and associated interim communications systems rolled out during the foundation stage of the smart meter programme – Including both SMETS1-compliant and pre-SMETS1 meters. Any limitation to technical interoperability (due for example to incompatible communications standards) is likely to hinder the change of supplier process and undermine consumer confidence in the smart meter programme.

Proposition 7 – Electricity data processing and aggregation services should be procured centrally in order to reduce costs and support fast customer switching.
While we support this view in principle, it is important to make provision not only for half-hourly settlement, but also for more granular time-of-use tariffs. It is also important to recognise that network operators will need direct access to half-hourly data for regulatory purposes in terms of efficient network management. This requires a different form of aggregation which could conceivably be performed by DCC but is more likely to be performed by network operators who would look to aggregate data at a defined 'network' level. This is quite different to the function of aggregation for settlement purposes. Clarity as to network operators' requirements is very important and should be a clear obligation to any centrally procured service. Without this granular data it will not be practicable for network operators to manage their networks in the most optimal way, or fulfil their regulatory duties in respect of efficient and economical management of their networks to the full extent that would otherwise be possible.

Proposition 8 – The Smart Energy Code should be used as a vehicle to consolidate existing industry codes dealing with retail issues in gas and electricity to facilitate market development and reduce administrative burdens.
We agree the Smart Energy Code should be used as a vehicle to consolidate existing codes but this must be done with industry consultation to ensure appropriate frameworks are put in place to identify responsibilities at times of conflict in the transition to a low carbon economy. Satisfactory ongoing governance of the SEC will be critically dependent on appropriate representation from all legitimate stakeholders.

Questions 5 to 8 – additional comments
We generally agree with propositions 5 to 8; however believe that insufficient attention has been given to the extent to which the timeframes specified are largely outside the control of the industry and the regulator. For example technology uptake curves for new technologies such as electric vehicles are uncertain and could lead to demand changes that may be difficult to cost-optimise in the short term.

We also believe that co-operation within the electricity industry will be needed to achieve a successful transition to a smarter market. During the transition period, consumer protection from costs incurred by the industry on behalf of consumers might be better assured by enabling market participants to work together. For example network operators could work together with suppliers in setting time-of-use tariffs to ensure that consumers are presented with pricing signals that are more reflective of both energy and network related marginal costs. Consumers would then have greater visibility of the overall system costs and the longer term consequences of using electricity at peak times (or the benefits of using electricity during off-peak times) and hence be able to make better informed decisions regarding their energy usage behaviour.