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National Infrastructure Assessment consultation  
National Infrastructure Commission  
5th Floor  
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12 January 2018

### **ELEXON's response to NIC Consultation on Congestion, Capacity, Carbon: Priorities for National Infrastructure**

ELEXON delivers the centrally-mandated electricity settlement services that are critical to the successful operation of Great Britain's electricity trading arrangements under the Balancing and Settlement Code (BSC). We manage processes and systems from electricity meter to bank, handling over £1 billion of transactions each year and interacting with over 230 companies in the electricity industry. As part of this we administer the settlement of the Balancing Mechanism and the determination of electricity imbalance prices for generators and suppliers in respect of each half hour of each day. We are independent of any specific interests within the electricity sector.

We welcome the opportunity to respond to the National Infrastructure Commission's call for evidence. We believe that in many sectors market design will determine whether the physical infrastructure is used optimally, and note the recent calls for evidence from BEIS on the cost of energy and from Ofgem on future supply arrangements, and ELEXON's responses to these consultations, particularly in the areas of market design and governance. We believe that a coordinated solution across all of these work streams is needed to gain maximum benefit for the end consumer.

We are certain that technology and innovation will be the main drivers for keeping electricity affordable within the environmental constraints in the future and believe that in parallel with infrastructure developments the regulatory approach, code governance regime and the electricity codes need to change to unlock the benefits of innovation and technology to the electricity community, our customers and the end consumer. For example, the potential contractual relationships the consumer will have in future with both existing/new electricity supplier(s) and new service/technology providers, will require radical and strategic change to the electricity market arrangements. Both BEIS' and Ofgem's call for evidence will help to gain better understanding of these complex issues and work out a way to unlock these benefits.

In order to ensure that electricity market arrangements do not form a barrier to optimisation of infrastructure utilisation, we propose more extensive collaboration and ultimately consolidation of industry governance bodies as this would simplify and streamline processes and the user experience. We strongly believe now is the right time for the industry and us to take the cross-code working initiatives to the next level focusing on closer working between code administrators and even consolidation rather than competition and further fragmentation.

We believe that the innovation in both market structures and new technology will drive massive changes across the electricity supply industry in the coming years. We want the BSC to be an enabler (not a barrier) to the benefits of innovation, and are working with Ofgem and industry to improve the BSC and facilitate innovative business models and technologies. For example, we have provided expert advice to Ofgem in their Innovation Link and Sandbox programmes to help understand where barriers exist today to innovation. In addition ELEXON recently successfully sought the BSC Panel's approval to raise BSC Modification P362 'Introducing BSC arrangements to facilitate an electricity market sandbox'. This initiative will allow the BSC Panel to give Parties temporary derogations from BSC requirements, which will enable pre-competitive or proof of concept testing for innovative products/business models in the live BSC Settlement environment. We note that we are the only code administrator so far to follow Ofgem's lead in the development of a sandbox.

Going forward continuous change will be the norm, and regulation, and legislation, must be strong enough to provide all necessary protection to end consumers but at the same time flexible be enough to allow the rapid evolution of markets and systems.

It is highly likely that the future architecture will require markets that operate from actual individual half hourly meter data. In order to be assist these developments ELEXON is leading on the development of the Target Operating Model (TOM) for market wide Half Hourly Settlement (HHS). We believe HHS to be a fundamental enabler for development of innovation, and therefore key to unlocking the benefits of innovative concepts.

The views expressed in this response are those of ELEXON Ltd, and do not seek to represent those of the BSC Panel or Parties to the BSC.

If you would like to discuss any areas of our response, please contact me on 0207 380 4328 or by email at [jeremy.caplin@elexon.co.uk](mailto:jeremy.caplin@elexon.co.uk).

Yours faithfully,



Jeremy Caplin,  
Market Architect, Design Authority, ELEXON

Attached: ELEXON Response to Call for Evidence

## CONSULTATION QUESTIONS

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We have not answered all the consultation questions, and have only included those questions to which we have provided an answer below.

### ***1) How does the UK maximise the opportunities for its infrastructure, and mitigate the risks, from Brexit?***

In alignment with what is probably the position of the rest of the electricity sector, ELEXON is primarily seeking certainty on our future trading relationship with the EU post-Brexit. In electricity terms, this means the extent to which we are part of the European single electricity market and bound by its rules and obligations, as we are actively in the process of changing our rules and systems to comply with recent EU electricity market legislation.

If we are not to be in the single electricity market, we would need to know what will replace it to identify any impacts/changes required from us, including whether any cessation of these existing EU-driven projects is required.

If we remain in the single electricity market, then we expect that the sector, including ourselves, will be seeking new routes to influence (as far as possible) the implementation of any future changes to that market to minimise costs to the UK end consumer.

### ***2) How might an expert national Infrastructure design panel best add value and support good design in UK Infrastructure? What other measures could support these aims?***

An expert national infrastructure design panel could add value by providing a coordination role between design panels working in different areas. As an example of the coordination that may be required, it would be possible for a solution for Half-hourly settlement in the electricity sector to create a requirement for data flows that had an impact on digital infrastructure. Similarly solutions being designed for on road charging of electric vehicles could impact on road design requirements.

In many sectors Market design will determine whether the physical infrastructure is used optimally. Therefore an expert national infrastructure design panel would need to consider market design alongside physical infrastructure design. The representation on the panel would need to ensure that appropriate market expertise was included.

### ***3) How can the set of proposed metrics for infrastructure performance (set out in Annex A) be Improved?***

For the performance measures relating to Energy set out in Annex A, we suggest the following adjustments:

- The metric on Service Quality on the number of installations of smart meters should distinguish between the number of Smart Metering Equipment Technical Specifications 1<sup>st</sup> version (SMETS 1) meters in operation and the number of SMETS 2 meters in operation.
- The metric on Quality of User Experience should include a measure of the average switching time between suppliers.
- The metric on Everyday Resilience should measure number of times per year that properties lose access to energy as well as the “time that properties lose access to energy”. One 4.5 hour loss of supply a year is very different to a 5 minute loss of supply every week for a year.

**15) How could existing mechanisms to ensure low carbon electricity is delivered at the lowest cost be improved through:**

- *Being technology neutral as far as possible*
- *Avoiding the costs of being locked in to excessively long contracts*
- *Treating smaller and larger generators equally*
- *Participants paying the costs they impose on the system*
- *Bringing forward the highest value smart grid solutions*

Our views on this issue are discussed in our responses to Ofgem's call for evidence on Future Supply Market Arrangements and to BEIS' call for evidence on the Cost of Energy Review.

**The importance of Half Hourly Settlement: simplicity, accuracy and innovation**

ELEXON believes that half hourly settlement (HHS) is needed to unlock the benefits of smart meters and innovation and technology, as well as making the market more accurate and simpler (settling on actual meter data and not profiled estimates). As part of Ofgem's Significant Code Review, ELEXON is, through an expert group, leading on the development of the Target Operating Model (TOM) for market wide HHS. We believe HHS to be a fundamental enabler for development of innovation, and therefore key to unlocking the benefits of innovative concepts. One crucial design principle is to ensure the TOM is flexible (not a barrier) for new parties who wish to offer services to the consumer, e.g. multiple suppliers, aggregators, EV charger providers, etc.

**Splitting single meter data between multiple suppliers**

An example of the way that regulation and legislation can act as a perceived blocker to innovation is the issue of splitting the allocation of electrical energy measured by a single meter between multiple suppliers. Current BSC arrangements allow for splitting of data across multiple suppliers but only by fixed blocks of electrical energy or a percentage of the electrical energy supplied through that meter. These arrangements were designed with larger half hourly metered sites in mind, and are unlikely to provide a practical mechanism for dynamically changing multiple suppliers, peer-to-peer or other innovative models for electricity supply. The innovative nature of some future models suggests that a more dynamic way of splitting data could be required. We intend to engage with BSC Parties (as a BSC Issue) to assess potential changes to the BSC (and other industry codes) that could address this issue. However, we note that the wording of the Electricity Act needs careful consideration as to what changes can be made towards the use of multiple suppliers for an individual consumer without the need for change to primary legislation.

We note that from a settlement perspective, a requirement for more than one supplier to access data from a single individual meter would require significant industry system changes, as the entire industry operates on the assumption that a single supplier connects to the active import data from a single meter, and a single supplier connects to the active export data. We would also welcome discussions with Ofgem/industry on how to design process changes that will be necessary to deliver these innovative models.

### Rationalisation rather than fragmentation

Over the last year, we led on cross-code coordination initiatives and created a Forward Work Plan of modifications to all codes and shared this with the industry, but we were disappointed with the lack of support and contribution from other code administrators. We also proposed to Ofgem improvements to code governance, which do not require legislation.

We believe greater cooperation and a closer alignment between all code administrators is required if we are to deliver government strategic priorities for the electricity industry as detailed in BEIS and Ofgem's joint Smart Systems and Flexibility Plan, published in 2017.

Therefore our vision for the future of central services is not for periodic competition between code administrators where code bodies cut back on valuable expertise, refuse to share best practice or impose additional charges for new out of scope activities. Instead we propose more extensive collaboration and ultimately consolidation of code bodies as this would simplify and streamline processes and the user experience.

For a number of years we have been advocating the case for change in central market governance arrangements. We strongly believe now is the right time for the industry and us to take the cross-code working initiatives to the next level focusing on closer working between code administrators and even consolidation rather than competition and further fragmentation. The introduction by Ofgem of a new Retail Energy Code (REC) with its own code administrator provides the opportunity for industry to start that consolidation. We question the benefit of adding another code administrator to the already complex and confusing landscape. A much better option in our view is to appoint a trusted and respected organisation, such as ELEXON, with the interests of supporting industry, government and the regulator ingrained in its DNA, and on a not-for-profit basis just like the BSC.

### *20) What changes to the design and use of the road would be needed to maximise the opportunities from connected and autonomous vehicles on:*

- *motorways and 'A' roads outside of cities?*
- *roads in the urban environment?*

### *How should it be established which changes are socially acceptable and how could they be brought about?*

The provision of adequate numbers of EV charging points in both urban and rural environments will be key to the uptake of EVs. ELEXON is currently working with the industry to seek to find ways in which the number of charging points can be increased as easily as possible, through innovative solutions such as charging points associated with lamp posts, where ELEXON is assisting innovators by advising on the regulatory and industry governance issues that need to be resolved to implement the concept.

EV charging technology requirements should be considered at the design phase by default in all future road and highway infrastructure construction.

**21) What Government policies are needed to support the take-up of electric vehicles?  
What is the role of Government in ensuring a rapid rollout of charging infrastructure?  
What is the most cost-effective way of ensuring the electricity distribution network can cope?**

Policy and legislation should not be a barrier to innovation. There needs to be a mechanism for outdated legislation to be rapidly amended, recognising the pressure on parliamentary time. This may also require a high level body with the authority to coordinate and prioritise changes across multiple bodies.

An example of this is in the current innovative solution of charging EV from street lighting. Metering legislation currently requires all meters to have physical displays such that customers can validate their bill. This display is mandated to be integral to the meter. With the advent of mobile phone technology, information can be passed to customers via mobile apps which achieve the same result in a more efficient manner. The consequence of this legislation is that either street lighting EV charging has to come under Unmetered Supply Regulations or else physical meters have to be installed in lampposts. It is unlikely that a customer would ever use this meter when control of the charging is done via a mobile phone app that includes the meter data.

The generic issue is that as well as the ability to fast track changes to existing legislation, any new legislation should seek to provide future proof arrangements for innovative technology.

As a specific point, there should be a review of Metering Regulations and Unmetered Supply Regulations to ensure that these align with innovative propositions for EV charging such as via street lighting charging points.