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ELEXON's response to BEIS' call for evidence on the Cost of Energy Review

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 BEIS' call for evidence on the cost of energy review. It is the right time for BEIS to consider how to reduce the cost of energy in the longer term. We believe a holistic approach is required to gain maximum benefit for the end consumer and the matters that are identified with this call for evidence should be linked with Ofgem's call for evidence on the future supply market arrangements.

We are certain that technology and innovation will be the main drivers for keeping energy affordable in the future and agree it is right to question how the regulatory approach, code governance regime and the energy codes need to change to unlock the benefits of innovation and technology to the energy community, our customers and the end consumer. For example, the potential contractual relationships the consumer will have in future with both existing/new energy supplier(s) and new service/technology providers, will require radical and strategic change to the energy 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. We agree with the theme of the consultation and that there is a need for a top down revolution in the regulation of the energy industry and we support both BEIS and Ofgem in driving this revolution.

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. This will require a revolution in the way that regulatory and legislative change is performed.

As part of our commitment to prepare for this new world we are working with Energy Systems Catapult on the Future Power Systems Architecture (FPSA) project - a multi-stakeholder collaboration commissioned by BEIS from the Energy Systems Catapult and the Institution of Engineering and Technology (IET), with the objective of establishing what new tasks or functions will need to be implemented to plan and operate the power system in response to new user needs. The FPSA could form the vehicle for holistic change to the electricity supply industry following the completion of this consultation and the Ofgem consultation on Future supply market arrangements.

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.

We agree that the development of Regional System Operators, with regional balancing, offers the potential of significant benefit to the end consumer, both in terms of costs savings and system security. As balancing activities devolve to smaller and smaller parties connected at lower voltages, optimisation of local restrictions on the distribution network will become more and more significant, particularly with the growth of active network management. This all points towards Balancing becoming a regional rather than a national activity. As the report recommends, commensurate with the move to RSOs, the role of the National System Operator diminishes towards a coordination role, while Settlement activity increases. We agree that this coordination role sits more appropriately with a non-commercial organisation such as a not for profit company or a public body.

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 .

Yours faithfully,

Jeremy Caplin,
Market Architect, Design Authority, ELEXON

Attached: ELEXON Responses to Call for Evidence

Electricity generation

Taking into account the findings and recommendations of the Helm Review:

What are the longer-term challenges for electricity generation?

The key challenge in the area of electricity generation is to establish a market framework that ensures security of supply across all reasonable scenarios of generation mix and of electricity demand. This can only be achieved by establishing market mechanisms that are flexible and dynamic to meet the challenge of the move from an analogue electricity supply industry with a few large generators interacting with a single central control centre to a flexible and responsive industry with many thousands of small generators interacting with local control centres managing local system issues.

Smart, agile regulation will always be required

We believe that a regulated market will continue to be necessary to ensure reliable, affordable energy supplies to all consumers. Smarter regulation and governance should be encouraged in order to unlock benefits of innovation through smarter systems and smarter markets. In November 2017 at the Smart Futures Forum, Dermot Nolan, CEO of Ofgem referred to regulation needing to be ready for revolution. We agree with this and we believe this approach would need to apply holistically to all elements of the energy community, top down from policy, regulation, energy systems and markets. Importantly, this should also include improvements to the way that changes to the codes (and supporting processes, systems and data) are raised, assessed, approved and implemented in order to allow a more agile way to implement change in a timely manner (and therefore unlock quicker any benefits from innovation) and we at ELEXON have been suggesting this for the last 18 months (see our briefing note on Code Governance Reform and more generally our 2018/19 Business Plan).

Capacity is a national issue

We agree with the recommendations of the report that the current move towards distributed generation should be mirrored by a move towards distributed control of that generation, with the establishment of Regional System Operators (RSOs) together with a not for profit national coordination function. The development over recent years of Active Network Management (ANM) on the distribution network has had a significant effect in improving the efficiency of the distribution system, and reduced the need for system reinforcement, and ELEXON published guidance to the industry on the commercial implications of ANMs in 2015. Planning and control of these ANMs already sits at the distribution level, with very little interaction with the national control centre. Devolution of more control to RSOs from a national level will significantly enhance the potential of ANM.

We believe that capacity auctions will play a crucial role in ensuring security of supply into the future, and believe that the execution and administration of the end to end unified equivalent firm power capacity auction process should sit in an independent not for profit organization. We note that at present the end to end processes for Contracts for Difference (CFD) and the Capacity Market (CM) are split between National Grid, Low Carbon Contracts Company, Electricity Settlements Company and EMR Settlement Ltd (EMRS), a wholly owned subsidiary of ELEXON Ltd.

We would also propose that any new unified equivalent firm power capacity auction should ensure that it is fully accessible to innovative solutions as well as the existing providers.

What matters should the Government take into account in considering the policy framework for electricity generation?

Now is the time for change

The Government should be seeking to guide the evolution of the electricity market to deliver affordable, secure electricity for all. We believe it is the right time to question how the regulatory approach, code governance regime and the energy codes need to change to unlock the benefits of innovation and technology to our customers and the end consumer. The potential contractual relationships the consumer will have in future with both existing/new energy supplier(s) and new service/technology providers will require radical and strategic change to the energy market arrangements.

Complexity risks becoming a barrier to innovation

We agree that the ever increasing complexity of the governance regime risks becoming a barrier to innovation. The complexity of existing regulations require innovative new players to incur additional costs to assess how their ideas interact with existing regulations, and we have observed instances where potential parties approach ELEXON without a clear enough understanding of the detail of the high level idea they are proposing. The provision of Sandboxes goes some way to address these issues, however there needs to be a joined up approach across all industry codes (11 codes in total) where impartial advice on each of the codes is provided that would assist with the development of this innovation (and thereby unlock the considerable potential benefits to the end consumer). The service would need to be provided by an organisation or organisations that are trusted and non-commercial. We also note that the ability of consumers to understand the complexity of market arrangements has the potential to cause issues with consumers failing to engage with alterative service offerings. In fulfilling our role as manager of the Balancing and Settlement Code (BSC), we routinely work with existing and potential new parties to help them understand the BSC arrangements and how it interacts with their evolving/new business models. Our market entry team regularly receives highly positive feedback from customers, achieves top scores in our own independent customer survey and was expressly complimented in Ofgem's own cross code administrator survey.

While the market is complex, ELEXON excel in understanding this complexity and, along with Ofgem, offer advice and support to current and potential market participants to help them navigate the complexity in the most efficient way. We would of course welcome simplification where it can be done while ensuring parity for all players. The challenge will be to unlock the benefits of innovation with flexible market models based on actual meter data. For example, as part of Ofgem's Significant Code Review, 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. One crucial design principle is to remove the existing complex profiling arrangements (used to convert meter readings taken over days/months into half hourly periods and just simply settle the actual half hourly data from the smart meter). Another major design aim 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, peer to peer traders.

BSC and other industry codes should be an enabler

We want the BSC to be an enabler 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 to supporting their day-to-day operational interaction with the BSC, we are working with industry/Ofgem to improve the BSC and facilitate innovative business models and technologies. For example, 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.

Other examples of where we are supporting innovation include the advice we provide new market entrants to help them understand the arrangements and their obligations, and we have seen 65 new Suppliers accede to the BSC in 2017.

System costs should be shared fairly

We have noted some BSC Modification proposals that appear to be aimed more at a reallocation of existing charges between the parties rather than a reduction in total cost to the industry, and believe that disruptive models must deliver true cost savings, not just provide a commercial advantage to a party or parties by avoiding their fair share of the bill. We note that currently consumers embedded within the distribution network are deemed to be paying for upstream infrastructure. We believe that this principle should persist, with new business models required to recognise the need for embedded consumers to contribute towards the cost of upstream infrastructure and understand this is being looked at through Ofgem's Targeted Charging Review.

What additional evidence should the Government consider to reduce the cost of electricity generation in the longer term?

Clarification of policy/direction required

Policy guidance is needed to define the direction of travel of the market. The infrastructure, laws, regulations and market rules all currently revolve around the Supplier Hub model. Fundamentally different market structures are likely to be needed for an industry that develops into an innovator friendly Supplier Hub, or one that develops into distributed generation and peer to peer trading with a small amount of high voltage interconnection between the distributed generation and small local networks. For this reason greater strategic direction is required from BEIS and/or Ofgem.

We welcome the proposal in the report of clear and transparent guidance on energy policy being provided on a regular basis by the government. We do note the long term nature of most investments in the energy sector, and that any annual statement should focus on fine tuning on policy, rather than major changes on an annual basis.

Electricity transmission and distribution

Taking into account the findings and recommendations of the Helm Review:

What are the longer-term challenges for electricity transmission and distribution?

Distributed generation leads to distributed control

A key challenge to electricity transmission and distribution is the rise of distributed generation. Indeed, with ever increasing volumes of generation and demand side response connecting at lower voltages, the distinction between the roles of transmission and distribution becomes blurred, supporting the case for RSOs. We agree that the development of RSOs, with regional balancing, offers the potential of significant benefit to the end consumer, both in terms of costs savings and system security. As balancing activities devolve to smaller and smaller parties connected at lower voltages, optimisation of local restrictions on the distribution network will become more and more significant, particularly with the growth of active network management, as ELEXON discussed in a guidance note on ANMs published to the industry in 2015. This all points towards Balancing becoming a regional rather than a national activity. As the report recommends, commensurate with the move to RSOs, the role of the National System Operator diminishes towards a coordination role, while Settlement activity increases. We agree that this coordination role sits more appropriately with a non-commercial organisation such as a not for profit company or a public body.

Intermittency and Storage

The increasing volume of intermittent generation such as PV and wind presents significant challenges to both National and Regional System Operators. Energy storage is likely to provide a significant part of the solution to this problem, but is not without its own challenges to SOs. At present intermittent generation in the form of wind and PV is driven by weather conditions. An SO could choose to invest sufficiently in weather forecasting services such that it could forecast intermittent generation with reasonable accuracy. However, the behaviour of storage will be driven by commercial considerations rather than natural phenomena, and so regulation will be necessary to ensure that SOs have the necessary information to manage their networks and balance the system. The likely volume of storage again supports the case for RSOs.

We agree with the principle advocated in the report that intermittent generation sources should bear the cost incurred on the system as a result of their intermittency.

What matters should the Government take in account in considering the framework for network regulation, and its associated institutional framework?

Roles of Regional System Operators (RSOs) and National System Operators (NSOs)

Historically the system has been successfully operated by a series of regional control centres (RSOs) operating across a range of voltages, with a very small central coordination function. With the current growth in distributed generation and change of energy use this may be an appropriate model for future operation. With modern technology the short term balancing of generation and demand to control system frequency could be performed by the RSOs without the need for intervention from a central NSO. Movement of electricity at any voltage could be done by competing electricity transportation companies under the control of the RSOs, with national strategic planning undertaken

by a committee of the RSOs, facilitated by a not for profit organisation. As the electricity market would continue to operate at a national level, electricity imbalance would continue to need to be settled as at present.

In considering the case for RSOs, we note that the current operating model used by National Grid already utilises regional balancing, with different individuals, known as Zonal Balancing Engineers, based at different geographic locations being responsible for short term balancing in the North and South of the country, with a single National Balancing Engineer providing a coordination role. We also note the current delay of at least five years in implementation of National Grid's new National Balancing tool, EBS, as clear evidence of the complexity of national balancing in a world of distributed and intermittent generation.

Role of Regulator

ELEXON recognises the key roles played by Ofgem and BEIS in guiding and regulating the network and does not believe that the need for such roles will diminish in the future. Challenges will be to regulate smarter and flexibly, especially in the age of innovation and technology change. Principle based regulation will unlock benefits of innovation to the end consumer.

Slow regulatory and code change

The current process for regulatory and code change is slow. This can cause innovation to become obsolete before it has even been trialled. This is largely driven by the regulatory requirements to consult on changes, and is being addressed to some extent by the Sandboxes being developed/operated by Ofgem and ELEXON (through BSC Modification P362). We believe that in order to deliver smarter, more agile regulation, the regulatory approval approach needs to be considered. This may require increased authority for industry panels or committees to rule on some changes with a significantly shortened consultation process. We understand that this is one area to be considered as part of Ofgem's work on the Consultative board and strategic direction. Additionally, the approach, principles and processes that are used in agile delivery/implementation of change (as opposed to the 'waterfall' method) may bear fruit in the upfront 'design, assess and approval' process of change.

What additional evidence should the Government consider to reduce the cost of electricity networks in the longer term?

Rationalisation rather than fragmentation

Multiple central organisations and industry codes increase complexity and costs. There is scope for rationalisation in this area (as noted by ELEXON in previous consultations[1] on code reform) and we hope Ofgem's work on the Consultative Board would seek to provide direction. For example, the proposals for RSOs could allow the abolishment of the distinction between Transmission and Distribution, allowing all parties to interact only with the RSO, with an updated Distribution Code removing the need for the Grid Code. This would remove the artificial distinctions between how some parties are treated in Scotland as against England and Wales. As well as this elimination of a Code, there is a strong case for the consolidation of the number of code bodies.

[1] See for example: ELEXONs response to the Electricity Market Reform Consultation in 2012; ELEXON's response to consultation on a proposal to make a Market Investigation Reference in respect of the supply and acquisition of energy in Great Britain in 2014; or ELEXON's response to 'Promoting Smarter Energy Markets' consultation in 2012.

Our vision for the future of central services is for more extensive collaboration and ultimately consolidation of code bodies as this would simplify and streamline processes and the user experience.

To quote from our Chief Executive Officer, Mark Bygraves, in his introduction to our 2018/19 Business Plan:

"Over the last year, we lead 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 energy 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 we 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; to that end we wish to share our revised vision for ELEXON. 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. The appointment of the administrator is we understand to be by suppliers and I therefore encourage suppliers to consider the attributes they desire and appoint the code administrator that best exhibits these."

System Operator Incentives

We believe that the difficulties in creating a fair and efficient incentive regime demonstrate the advantage of the key industry roles being performed by a not for profit organisation rather than a commercial company

We recognise the difficulties in determining appropriate incentives for the System Operator, and note the recommendation of the Energy Systems Catapult in their response to Ofgem's consultation on Future arrangements for the electricity System Operator: the regulatory and incentives framework that the calculation of incentive targets sits more naturally outside the incentivised organisation:

"Another important consideration is the assessment of performance against the incentive targets. It does seem perverse that the SO's own models are used to provide the key information used to set the target for incentivised balancing costs. A better solution would be for an independent party such as ELEXON to hold the key information and run the models used to produce the forecast. It would also seem sensible for an independent body to assess the SO's performance against the target. This independent body could be chaired by Ofgem with representatives from trade bodies such as Energy UK, the Renewable Energy Association, and organisations representing storage and other balancing services providers."

Electricity supply

Taking into account the findings and recommendations of the Helm Review:

What are the longer-term challenges for electricity supply?

The key challenge for electricity supply is to ensure that end consumers have access to affordable, secure energy supplies, and that they are able to navigate the products available to them to select appropriate tariffs. In relation to default tariffs, ELEXON does not operate in this space and so it would be inappropriate for us to comment on this area.

We note the assertion in the report that the cost of energy is too high. ELEXON ensures that the settlement for actions taking through the Balancing Mechanism is efficient, and that the costs to the consumer are as low as possible within the prevailing regulatory regime.

What matters should the Government take into account in considering the longer-term operation of the retail market?

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.

Regulation to protect the end consumer must remain

Many existing regulations and requirements have been specifically put in place to provide protection for the end consumer. It is important that all future services are subject to sufficient regulation to ensure that the same level of protection is afforded to the end consumer.

Regulator is there to catch the big problems

The role of the regulator should be to protect from significant harm; either in the form of significant financial loss or else loss of supply. The regulator should not necessarily be there to protect a consumer who, with the benefit of hindsight, determines that a marginally cheaper option was available to them.

Regulation of new organisations

Any party that has the potential to cause consumers significant harm should be regulated. Within the BSC this could be achieved by removing the distinction between suppliers and intermediaries. The existing role of the supplier could be broken down into several distinct functions with separate regulatory requirements. Any party wishing to perform each of the identified functions would have to meet the regulatory requirements of each separate function. This would allow market participants to operate without having to meet all the obligations currently on suppliers.

Targeted regulation

Within the option of 'mini suppliers' specialising in some parts of the supplier role, it is possible that each new market participant could be required to comply just with those sections of the BSC that are deemed critical to the role that they are seeking to perform. The charging arrangements would then have to be changed to reflect the costs that different parties imposed on the system. The overall charging regime would need to ensure that all costs were covered, and that some roles were not unfulfilled due to low profit margins that could be associated with those roles.

What additional evidence should the Government consider to reduce the cost of electricity supply in the longer term?

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 energy measured by a single meter between multiple suppliers. Current BSC arrangements allow for splitting of data across multiple suppliers but only by fixed block or percentage. 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.

Moving to more granular settlement than at Transmission Grid Supply Point level

The movement of settlement down towards individual consumer level from the current Grid Supply Point level would be a fundamental market change that would act as a key enabler to many innovative ideas. This would logically follow from the abolishment of the distinction between Transmission and Distribution, which would do away with the concept of Grid Supply Points, as there would be no Transmission Grid to Distribution transition point. We are aware that this could significantly increase data volumes across the market, and so may lead to some increased costs. We believe that a cost benefit case would need to be established to demonstrate the benefit of such a change, but anticipate that the analysis would support the cost effectiveness of the change. We are confident that we could deliver the change in a cost effective and timely manner. As discussed above, we believe that the costs associated with any such change should be shared by all who would benefit from the change.

Cross-cutting

Questions

What matters should the Government take into account in considering the wider recommendations of the Review?

Parties' accountability

Parties should be held accountable - We believe that any party that interacts with the end consumer must be held accountable for their actions, and so be subject to regulation. This should not be limited to intermediaries or any other specific class of parties.

Are there any other matters that the Government should consider to reduce the cost of energy in the longer term?

Data Availability

In order to promote innovation on a level playing field, anonymous or aggregated energy volume data could be available to all potential market participants at the lowest possible spatial and temporal granularity. We note that data protection regulations, including the recent European General Data Protection Regulation (GDPR) (Regulation (EU) 2016/679), potentially make it difficult to access suitably granular meter data. ELEXON are working with Ofgem on potential approaches to meet the GDPR requirements as part of the market wide HHS design work.

Furthermore, we have seen changes such as Connection and Use of System Code (CUSC) Modifications CMP264 / CMP265 and BSC Modifications P348 / P349, where data requirements for network charges have required new aggregations based on criteria that require access to greater levels of disaggregated more granular meter data. ELEXON believe that the availability of access to appropriate data (subject to data privacy requirements) should be a key consideration of future market models, e.g. HHS.