

By e-mail to: Opennetworks@energynetworks.org

21 September 2018

Consultation on DSO Future Worlds – ELEXON Response

Dear Open Networks Project Team,

We welcome the opportunity to comment on the questions posed in the above consultation document.

As you are aware, ELEXON (as 'BSCCo') is the Code Administrator for the Balancing and Settlement Code (BSC). We are responsible for managing and delivering the end-to-end services set out in the BSC, for which we provide Code Manager, Delivery Body and Policy Delivery services. In addition, through our subsidiary, EMR Settlements Ltd, we are the EMR Settlement Services Provider, acting as Settlement Agent for Contract for Difference generators and Capacity Market providers.

We believe that Distribution System Operation (DSO) is a huge opportunity for unlocking more value from flexibility in the GB energy system. Key to unlocking the value will be building the right market framework to ensure resources can compete effectively and efficiently to deliver their services across the country.

We believe that key aspects of the future of flexibility markets are transparency, and consistency. Transparency provides market participants with the information and confidence they need to compete effectively, enabled by platforms such as the [Balancing Mechanism Reporting Service](#) which provides a one stop shop for electricity market data. Consistency of arrangements enables simple routes to participation in multiple markets, unlocking value from stackable revenue streams, further increasing competition in flexibility services, thereby benefiting the end customer.

We also believe that the transition from Distribution Network Operator to DSO is a key enabler for further innovation in the electricity markets. We support innovation in a number of ways, including our work on [widening access to the Balancing Mechanism](#), the introduction of the [BSC Sandbox arrangements](#), our [white paper on multiple suppliers](#) and design work for the [market-wide half-hourly settlement Target Operating Models](#). We will continue to support the transition to DSO for the benefit of innovators as well as established market participants.

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

We would welcome a meeting with you to discuss our response, so please contact me on 07557 431 854 or Peter.Frampton@elexon.co.uk.

Yours sincerely,

Peter Frampton
Design Authority

Below are the ELEXON responses to your specific questions, omitting those questions on which we have not expressed a view.

Section 2 – The Future Worlds

We have set out five potential Future Worlds. Do you believe these provide a reasonable spread of potential futures?

We agree that the Future Worlds set out a reasonable spread of potential futures. We also believe it is important to be mindful of the fact that the electricity industry is rapidly changing, and that assumptions that the Future Worlds are based on may change before DSO implementation timescales. To that end, we believe it is important to identify the 'least regrets' actions set out in Section 8 prior to receiving additional direction from BEIS and Ofgem. We also believe it is possible to establish a number of principles which hold regardless of the recommended Future World. For example, these could include:

- how to ensure neutral market facilitation for all participants so that the end customer benefits the most; and
- the common architecture (including interfaces) for market participants and central services, including: flexibility; Demand Side Response (DSR), and the Balancing Mechanism and imbalance settlement administered by ELEXON.

Do you have any key concerns with any of the Future Worlds we have set out?

As is well elaborated in the reports, each World comes with benefits and challenges. We have considered the Worlds from the perspective of the wholesale market, as settlement agent and operator of the Balancing and Settlement Code (BSC), with a focus on enabling innovation and unlocking benefits for the end customer. In this context, we believe the following points are worth considering further:

General concerns

In Worlds A, B and C providers of flexibility have the possibility of directly contracting with a number of different flexibility purchasers (DSOs and ESO¹). While the element of consistency is important in all Worlds, it is particularly so in Worlds A, B and C to ensure that participants can easily provide relevant services to the multiple purchasers in a standard way. This is most important for Distributed Energy Resources (DER) operating across multiple geographic areas. We accept that different DSOs have different needs and therefore may be seeking specific products in their area. However, where a need is common, we believe there is value to the all market participants (both existing and new) of a common approach, service and architecture, including contractual arrangements.

World A

In this World, the DSOs become balance responsible parties, who will provide services to the ESO according to predetermined network connection schedules. There will be a relationship between the

¹ We note that there is potential for additional purchasers of flexibility which apply across all Worlds, for example suppliers, generators and non-ESO/DSO SOs (such as continental TSOs via the TERRE platform or similar initiatives).

balance position of the DSO (e.g. the position of the Grid Supply Point (GSP) Group) and the position of parties within that DSO area, for example suppliers. This could put the operations of the DSO in conflict with the operations of parties within its boundaries and would need to be carefully managed. For example by providing appropriate pricing mechanisms to provide market based solutions to conflicts, or alternatively robust and well monitored regulatory arrangements to eliminate the effect of conflicts. Without intervention to solve these inherent conflicts, the DSOs in World A could not likely be considered neutral market facilitators.

We are also concerned that World A would effectively restrict (direct) access to the Balancing Mechanism (BM), making DER one layer removed and reliant on DSO systems and processes to access this revenue stream. Again, there would need to be careful management of conflicts between DSOs and DER – and also between DSOs and ESO. This could be considered contrary to recent efforts to widen access to the BM, although we appreciate that indirect access could be maintained.

World B

World B relies on a central services market accessible by the ESO and participating DSOs (DSOs with a need for services). Depending on the framework and commercial practicalities of this model, it could be accommodated by, for example, expanding the scope of the Balancing Mechanism and providing a framework of support for other ancillary service markets for specific products, in the same way as happens today at the transmission level. ELEXON would happily enable, support and possibly run this process if this is the direction of travel for the industry. The nature of the balancing market is already changing, for example widening access to the BM and [Modification P344, Project TERRE](#), which ELEXON have been leading for 2 years, and will be implementing in 2019. Project TERRE removes barriers for customers and aggregators participating directly in the Balancing Mechanism, promoting competition and unlocking value for DER.

Indeed, regional and national markets should be coordinated within a single mechanism, for example geographically ring-fencing bids and offers with all open to ESO while only geographically relevant ones are available to a DSO. As Settlement already assigns energy in GSP groups there is a mechanism to account for this, which could be built on to facilitate DSO flexibility markets. This would lead to more efficient and therefore lower cost implementation and enable synergies to be realised, thereby creating value for all market participants sooner.

We believe that this type of common market interface would be a requirement regardless of World, to enable DER to participate in markets. The World would determine who is responsible for the interface, however from a DER perspective the end result 'look and feel' should be very similar.

World C

We have similar comments as for World B. In addition, the documentation describes 'coordinate regional and local markets flexibility resources...' which we anticipate as a potential development in all Worlds, although not necessarily coordinated by the DSO. For example, community energy schemes could be considered a hyper-local flexibility market, where the residual energy could then be available to DSO/ESO or settled at the imbalance price. Arrangements do not directly enable this type of market at the moment; however the market is continually developing therefore we do not believe this type of market should be prevented in any of the Worlds.

World D

World D is potentially closest to status quo, and therefore likely to be the easiest to implement. It could also be a good model for a least regrets/transition arrangement prior to full DSO implementation. This World could be facilitated by expanding the use of existing contracts and products (with alterations e.g. significantly smaller minimum volumes, more locational information) to meet DSO needs.

The modelling report states that World D could overlook smaller actors with distributed flexibility resources. This is not necessarily the case, as market frameworks could easily be adapted to account for smaller (even domestic level) flexibility resource, for example by updating the BSC. At the moment this resource is aggregated, either by a supplier or an aggregator, which remains an option. Indeed, Limejump recently accessed the Balancing Mechanism. Additional aggregators are expected to participate in the Balancing Mechanism following the implementation of P344, Project TERRE in 2019.

We believe this model effectively unlocks the benefits of DER flexibility at the lowest cost to end customers, although it retains control at a level further away from the needs. This would therefore need strong coordination and a conflict management process between ESO and DSO.

World E

World E is probably the furthest from status quo, requiring the establishment of an entirely new entity (or entities) to coordinate between System Operators. While this model potentially adds architectural complexity, it could simplify the process for DER by providing a single common interface for providing services. Having flexibility coordinators could also eliminate conflicts, in particular if the coordinator has no commercial interests of its own (i.e. independent non-profit entity). The primary concern with this World would be the number of interfaces, which introduce potential points of failure. However, it should not be forgotten that internal interfaces exist in the other models and are not displayed in the SGAM modelling, and modern technology can mitigate against interface failure (e.g. use of common data infrastructure, such as data lakes, instead of transferring data over networks. Use of automated triggers for response built into DER control systems, rather than instructed).

We note that the intent of a flexibility coordinator is to establish a common platform for the collection of DSO/ESO requirements, and the provision of services by service providers. We believe that this is a fundamental component which could be applied to all Worlds. The effect can be achieved by, for example, software or a fully independent service provider operating in partnership with ESO (World D) or DSOs (World A). This would then provide a common platform for access to, and provision of, flexibility services regardless of the World. The effect would be a similar interface to the common market platform described for World B, applied to any of the Worlds.

Section 4 – The principle of neutral market facilitation

How do you believe neutral market facilitation for SOs can be achieved?

We maintain that a consistent, nationwide approach is essential for DSO market facilitation. This approach will maximise the services that solution providers can offer to DSOs, as they can provide

services across multiple distribution regions. It will also help product developers, as their products can be installed nationwide.

Whilst DSOs will naturally be responsible for the operation of the system within their region, national strategic planning could be undertaken by a committee of the DSOs, chaired and facilitated by a not for profit organisation or public body.

Transparency and fairness are key elements of market facilitation, as they enable both competition and scrutiny of both market participants and monopoly purchasers. We would like to highlight the success and growing popularity of the [Balancing Mechanism Reporting Service](#) (BMRS) in its provision of high quality data on electricity markets and system operation, operated by ELEXON. Any future neutral market facilitator may be able to utilise this service, providing a 'one-stop-shop' for system information and allowing complete transparency of its operations and providing valuable information to its customers.

We note that the current wholesale electricity market arrangements operate well, with the underpinning market frameworks (such as rules for Balancing and Settlement) being highly regulated while market platforms (such as exchanges and brokerages, a competitive service, or tenders for ancillary contracts, operated by the ESO) operate on top of the frameworks.

What are the possible conflicts of interest that SOs need to be aware of when facilitating the market?

A System Operator which has a direct or indirect stake in any profit generating activities in the GB (or interconnected) energy industries would be subject to a conflict of interest, given the incentive to utilise those products or services in their markets. This includes manufacturers of equipment and providers of services. For example, if an SO were to own shares in a company that manufactures equipment with a particular characteristic, they would be incentivised to make that characteristic a requirement in their region. This would limit innovation and market entry from other manufacturers that produce similar products, thus creating a barrier to the market rather than effectively facilitating and enabling it. This principle could extend to gas and heat network operators.

System Operators should also be aware that a neutral market facilitator will be required to make value decisions across various markets. Multiple classes of products will be competing for investment and the System Operator should retain an obligation to provide the cheapest solution to end customers. For example, flexibility products (e.g. Demand Side Response initiatives) will always be competing against network reinforcement (e.g. larger transformers or more wires).

What additional requirements would be appropriate to ensure the neutrality of SOs in facilitating the market?

Any market facilitator can be truly neutral only when they are independent of profit generating activities in the UK energy industry. To mitigate, complete segmentation of business interests could occur, alternatively a more stringent measure would be to prevent any organisation with commercial interest in GB or interconnected energy industries being able to operate systems.

Under World A, in which the System Operator becomes a Balance Responsible Party, and in any model in which the System Operator becomes a market participant in competition with other System Operators and/or market participants for resources, it is hard to establish true neutrality. This is

particularly the case if that System Operator has control of the development of the market and market rules both for itself and others.

The current TSO Balancing Mechanism (BM) is largely isolated from this effect by four factors:

- (i) the ESO is sole purchaser of balancing products and is not in competition with other purchasers;
- (ii) the ESO is now separated from the wires and other assets providing balancing and ancillary services;
- (iii) the ESO is becoming increasingly transparent in its operations, decisions and BM data (see, for example, BMRS above) and is consulting stakeholders; and
- (iv) the development of the Balancing Mechanism cannot be made by the ESO in isolation from stakeholders and Ofgem, particularly in the settlement/market aspects where the ESO is one voice amongst many stakeholders who are given equal weight on working groups and the BSC Panel and the BSC is run by an independent administrator (ELEXON) who is legally required to be neutral amongst parties and classes of parties.

This suggests that in any World in which paragraphs (i) and (ii) above no longer hold, then paragraphs (iii) and (iv) become more important in securing neutrality of System Operators. Such that markets cannot be developed by the System Operators in isolation and that an independent and neutral market development/administration process is necessary.

Section 5 – Stakeholder insights

Which SGAM actor(s) best describes your future role(s)?

ELEXON is currently the imbalance and Balancing Mechanism 'settlement agent' for the GB electricity system. ELEXON compares how much electricity generators and suppliers contract to produce or consume with actual volumes produced or consumed. We work out a price for the difference and transfer funds. This involves taking 1.25 million meter readings every day and handling £1.5 billion of our customers' funds each year. Our customers include suppliers, generators, traders, distribution networks and interconnector users.

Do you have any thoughts on the insights gained on this role(s) in each of the Worlds?

ELEXON believes that, as an essential part of the arrangements maintaining the electricity market trading arrangements, settlement should continue to be a not-for-profit activity operated in the interest of all industry actors. This is particularly the case now that the energy system is changing rapidly with lots of innovation. Market participants, regulators, governance organisation and market participants need to be able to respond both quickly and robustly to change.

We also believe that there is significant value in standardising processes for market participation and settlement across the system. For example, with a single registration approach, a common set of metering arrangements, common settlement rules and timetables, a common benchmarking process etc. We believe this is needed for all Worlds, not just for World E.

The Balancing Mechanism will continue to be a valuable tool used by National Grid to maintain system frequency and manage transmission constraints. We believe that it could also be adapted to provide services to DSOs. The Balancing Mechanism operates in harmony with the wholesale markets and a

number of ancillary balancing services. The settlement processes operating after the fact to ensure a fair allocation of payments, according to a transparent set of market rules. Regardless of the use of the Balancing Mechanism in the future, we also anticipate the use of specific ancillary services for DSOs, with the backstop of imbalance settlement used to incentivise delivery.

It is important to distinguish the settlement of imbalance from the more usual settlement of financial contracts, which is performed by commercial entities (for example clearing houses attached to exchanges for wholesale energy). Imbalance settlement is the comparison of contracted positions with physical positions based on the actual cost of balancing the system, and is a one (Electricity System Operator) to many (BSC Parties) contract, as opposed to a one to one contract (such as buying an ancillary service, or selling power via a brokerage). ELEXON also performs the one to one settlement of contracts executed via the Balancing Mechanism on behalf of the ESO (payment of bids and offers and in future European TERRE products activated by the ESO on GB-based assets).

Section 6 – Assessing the Worlds

Do you agree with the proposed approach and timescales for delivering the assessment? Are there any improvements you would suggest?

We note that the assessment of the Worlds and drawing conclusions from the work so far and the responses to this consultation will be a significant undertaking. Given the overall scale of the project combined with the magnitude of the impacts, we believe it is worth taking the time to ensure the best possible decisions are made now, saving time, effort and money in the future.

Do you agree with the proposed assessment criteria and allocation into cases? What further development would you suggest to the criteria (e.g. any additional criteria) or structure and content of the Impact Assessment?

Given the decisions on future Worlds and ultimately the final shape of DSO lies with BEIS/Ofgem, we believe that basing the criteria on the Green Book cases makes sense. This approach is also consistent with the approach used for the faster switching and market-wise half-hourly settlement Significant Code Reviews. We believe the key criteria are affordability and fairness, given the potential benefits that could be unlocked, and therefore welcome the inclusion of these criteria.

Is there any data you could provide or suggest we collect to support the assessment?

As highlighted in the consultation, there is a considerable amount of data available from ELEXON via the Balancing Mechanism Reporting Service (BMRS) and the ELEXON portal. If there is any additional data that ELEXON could assist with providing, we are happy to discuss this with the project.

Do you believe that there are any tensions between different criteria and if so how should priority be built into the assessment?

There will always be conflicts between criteria, for example where affordability is considered alongside security or resilience – increasing one will likely detriment the other. Fortunately given the significant potential for net benefit, managing the tensions between criteria is arguably a secondary concern to unlocking the benefits of DSO.

The assessment should consider 'red lines' for certain criteria, such that if a scenario breaches a red line it should no longer be considered, or must include a mitigation of some kind. This then enables

the discounting or prioritisation of models, based on their performance against these red lines as well as their merits for criteria where they fall within acceptable ranges.

We are considering forming a sub-group to assist with the collation of data for the Impact Assessment; do you think this would be worthwhile and if so would you volunteer to be part of the sub-group?

The consultation already highlights data from ELEXON as being of value and we would gladly assist the project with this data. We are also happy to participate in the collation of other data for the impact assessment.

Section 7 – Key enablers for the future

Are there more key enablers that we should be considering?

We believe the Future Worlds consultation has adequately listed all key enablers for consideration.

Do you agree with our short-term investment priorities relating to the key enablers of:

- communications,
- IT, and
- network visibility & control?

We believe that the most significant enabler will be the regulatory changes. To that extent we welcome the work of the project and the opportunity of this consultation, to contribute thoughts prior to Ofgem and BEIS decision making.

Considering the different DSO model Worlds that Workstream 3 has considered, do you think the key enablers differ materially between the Future Worlds?

While the enablers themselves do not change, the arrangements set under each of them may be significantly different between the Worlds. We do not believe there needs to be any significantly different approach from the one proposed.

Section 8: Proposed next steps

Do you agree with the proposed next steps?

Given the degree of uncertainty inherent in the future work, the proposed next steps are a sensible way of balancing that uncertainty with maintaining progress towards the goal of DSO.

Is there any additional work that we need to undertake?

We have not identified any additional work that is required at this stage in the process.