Open Networks Project Consultation on Future Worlds

Energy UK DRAFT Response

Energy UK welcomes the opportunity to respond to this consultation as well as the continuing work of the Open Networks project. The work of the project has, to date, been an important part of forming the groundwork, in terms of continued information gathering, ahead of Ofgem decisions on future structure and processes across a smart flexible energy system.

We welcome the increased focus on engagement seen throughout 2018 and the dissemination events and webinars held throughout the consultation process have established open forums for discussion and enabled a wide range of stakeholders to be brought into the discussion. We hope to see as wide a range of responses to the consultation to ensure a continued collaboration across industry in developing a future energy system which efficiently and effectively meets the needs of all customers at lowest cost to consumers.

Energy UK will continue to work with the ENA and appreciate the opportunity to contribute through the Advisory Group. We also welcome the updates given to various Energy UK Committees and Working Groups by the ENA and maintain an open invitation to those groups moving forwards. We hope that by continuing to collaborate and engage with the Open Networks project we can find a suitable approach to the future energy system, to ensure that a broad range of stakeholders are able to support the outputs of the project.

Energy UK’s membership incorporates an increasingly broad range of market participants including suppliers, generators, aggregators and a range of other organisations involved in the provision of flexibility. Energy UK members also welcome the consultation, but hold concerns over future worlds proposed, particularly focussing on the need to ensure competitive markets which attract investment and work efficiently. Energy UK has reflected those concerns in the responses below.

In Regards to the Future Worlds proposed, Energy UK believes:

- World A: DSO Coordinates may not be a viable option due to the additional levels of complication added to the provision of Flexibility.
- The exemption of a range of options for DSO bodies leaves an area for further exploration, which should be taken forward by Ofgem.
- A wider review of the commercial and economic impacts of these worlds on other stakeholders should be integrated to ensure full consideration of costs and benefits.
- The Impact Assessment should be shared widely across industry in order to enable broad feedback and review, expanding upon information available to Ofgem in their decisions.

Energy UK and its members would welcome continued engagement and welcome any questions from the ENA or wider stakeholders.

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Questions

The Future Worlds

1. *We have set out five potential future worlds. Do you believe these provide a reasonable spread of potential futures?*

Energy UK does not find that these worlds provide a reasonable spread of potential futures due to the lack of examination of different approaches to DSO operations. Although Energy UK understands the decision and rationale behind focussing the Future Worlds consultation on the DSO functions without assigning these to any organisation, Energy UK finds that the modelling and wider analysis assumes a unified DNO-DSO entity.

There are a wide range of options for distribution-level system operation, including: DSOs reflective of DNO territories; the expansion on the existing ESO to incorporate distribution-level balancing; the creation of a single national DSO or the development of any number of DSOs not necessarily aligned with existing DNO territories. Without exploring a range of options in this space, the models may not provide a reasonable analysis of future worlds.

It is reflective of the transitory nature of the energy system that the five Future Worlds are limited by the range of market and regulatory changes currently progressing across the industry. As the charging futures forum and National Grid product strategy workstreams continue, for example, the energy system will gain greater elements of reflective price signals indicating the needs of the system. As has been discussed at a number of points in the Open Networks process, price signals integrated into model C will be reflected across any world in future.

Within the limits of the Open Networks project, these models represent a reasonable number of potential energy system futures to enable further discussion and exploration. No single model is aligned precisely with the positions of Energy UK, elements of each model have helped Energy UK, its members and wider industry to develop a greater understanding of the complex interactions expected in future.

Beyond the limits of the Open Networks project, a number of further considerations are more appropriate for Ofgem to explore. This includes examining the range of options for DSO operation, geographical scale, ownership and their relationship with the ESO. Resolving potential conflicts between asset ownership and market operation has driven the move to greater ESO independence at the Transmission level and should be reflected in similar efforts to ensure DSO independence.

2. *Are there other areas of potential Future Worlds you would like us to consider to inform our thinking?*

Given the timeline for the Impact Assessment, expected to commence before the end of this consultation, it is unlikely that significant changes will be applied to the models at this late stage. It would, however, be beneficial to consider the impact of greater DSO independence reflective of the ESO independence seen at Transmission level, but Energy UK feels that completing wider analysis of DSO operations and interactions is the responsibility of Ofgem.

It is important that all worlds be examined from the viewpoint of Transmission-level, whole electricity system outcomes, as well as incorporating the broader lens of whole energy system outcomes and whole of UK outcomes. The ESO must retain responsibility for national security of supply and will, therefore, continue to require a level of control over the entire electricity system in order safeguard the safety and stability of the system to provide the best outcomes for consumers at lowest cost and otherwise facilitate efficient and competitive markets that deliver the best outcome for all actors in the system.
There is a need for the Impact Assessment to explore a wide range of aspects of the Future Worlds, including impacts for a wide range of stakeholders, particularly for those actors outside of network and system operators. For example, it is important that the independent analysis following this consultation incorporate stakeholder impacts in terms of potential commercial and economic implications, as well as imbalance consequences, of any world. Another important cost impact to examine is the impact of DSO balancing activity on costs and benefits for local consumers, as well as comparing these to costs for national consumers.

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

Energy UK holds concerns over World A: DSO Coordinates, as this sets out the DSO function as inclusive of a role as both gatekeeper and aggregator of energy services. This world would increase complication for the ESO in ensuring whole electricity system outcomes and may negatively impact on whole system security. This role would negatively impact upon ease of market access, caused by the necessity to access national markets via the DSO.

Energy UK finds that the price signals represented in World C: Price Driven Flexibility should be reflected in every model, reflective of the ongoing work of Ofgem and the Charging Futures Forum. These price signals should further be incorporated into a wider examination of economic and commercial impacts of each model for stakeholders outside of network and system operators.

Energy UK holds concerns, expressed throughout the Open Networks project to date, over the assumed form of the DSO as an extension of the DNO set out within the core assumptions of each workstream, and were glad to see the assumptions modified to accept that new bodies may emerge or take on DSO functions. Although the Future Worlds consultation states the modelling considers only the DSO function and not which body fulfils them, this is a function which will require further exploration. There may be greater operational efficiencies achieved through the use of an alternative organisational format.

The SGAM

1. Have you been involved in any of the SGAM workshops?

Energy UK representatives have attended four of the five SGAM workshops and Energy UK member representatives have been present at all SGAM workshops.

2. How can SGAM modelling be used in further work to extract maximum value?

SGAM modelling should, as the European standard, continue to be used for systems modelling, including in the development of models, which should be led by Ofgem, which examine a range of DSO sizes, geographic regions and levels of operational independence.

3. What are the limitations of using the SGAM modelling for informing the Impact Assessment?

The limitations of the SGAM are based upon the limitations set by the defined models, as the SGAM can only inform the Impact Assessment within the constraints of the models presented.

The Principal of Neutral Market Facilitation

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

1 http://www.energynetworks.org/assets/files/ON-PRI-Phase%202%20PID%20v2.6%20(Clean%20Version)%20-%20Publish.pdf
Energy UK agrees with the position of the Council of European Energy Regulators in their conclusions paper regarding *Flexibility use at Distribution Level*, in that SOs can only be neutral market facilitators where they do not participate in markets. It is the role of Ofgem to continually and thoroughly examine the appropriateness of any commercial activities by either DNO or DSO.

Energy UK recently requested that Ofgem release a consultation on the commercial activities of regulated monopolies and hopes that this process will aid in clarifying what activities are contrary to the role of a neutral market facilitator. If the UK is to maintain energy markets which are competitive, operate efficiently and attract investment, regulated monopolies should not act as competitors to market participants. Further consideration is required from Ofgem on appropriate legal separation and governance frameworks for commercial use of a DNO asset to ensure optimal outcomes are achieved.

Ofgem will need to set out the regulatory frameworks which ensure neutrality of SOs. It is expected that neutral market facilitation will require a common set of terms and conditions and standard agreements which are reflected across all system operator services and processes. Existing requirements governing the ESO as a neutral market facilitator will need to be reflected for any newly created SO bodies. This includes in ensuring that any potential conflicts caused by the ownership of network assets are resolved, reflective of the greater independence of the ESO.

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

Ownership or operation of assets including energy generation or storage, as well as the aggregation of energy assets is in conflict with neutral market facilitation, as is established in existing rules and regulation around unbundling. SOs must not, therefore, act as commercial aggregators of flexibility.

All SOs will need awareness of and integration with other markets to ensure that the risk of contrary services being called is avoided, whilst still allowing for revenue stacking and wide access to markets by market participants. The ESO should retain overarching controls to ensure that national system security and whole electricity system outcomes continue to be delivered.

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

Energy UK agrees that the above requirements are necessary but, as stated in previous answers, there are a number of additional requirements which need to be explored, including separating network operation and system operation activities, as well as governance structures for SOs in future.

Existing frameworks and unbundling principles should be reflected across any new SOs and updated to ensure that the ability to access but not participate in energy markets. Participation in competitive markets should be denied for bodies acting as neutral market facilitator, as participation in markets would cause a conflict of interest. SOs compliance obligations will need to be revisited to ensure these are fit for purpose in a smarter, more distributed role. In particular, the current requirements for DNOs, derived from the Third Energy Package, will need to be updated.

**Actors**

1. **Which SGAM stakeholder(s) best describe your future role(s)?**

Whilst no stakeholder describes the role of Energy UK itself, Energy UK membership includes stakeholders reflected in Aggregator, Distributed Energy Resource, Electricity SO, Flexibility

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2. [https://www.ceer.eu/1519 - Flexibility Use at Distribution Level: A CEER Conclusions Paper](https://www.ceer.eu/1519)
3. [https://www.energy-uk.org.uk/publication.html?task=file.download&id=6767](https://www.energy-uk.org.uk/publication.html?task=file.download&id=6767)

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

Overarching
The impacts of World C will be reflected in all worlds across all stakeholders, as reflective pricing is being progressed and enabled as part of the work of the Charging Futures Forum. The impacts of reflective price signals and charging regimes must be reflected, wherever possible, across all worlds and stakeholder impacts.

The impacts set out in World A are concerning to Energy UK members due to the complication added by a DSO acting as a barrier to ESO market access. Market participants must retain direct access to ESO markets in order to:

1) enable the ESO to efficiently maintain security of supply;
2) enable the flexibility provider to adjust their range of services reflective of the state of the market, and;
3) prevent the need for those operating across a range of SO areas to enter into contracts with multiple local SOs in order to enter national markets.

Energy UK is aware of a number of responses being submitted by members, each of which will incorporate a reflection on their respective roles.

Aggregator
It is important to ensure that the economics of aggregator businesses is accounted for in each future model. Aggregators (who may be independent aggregators, suppliers, or large end-users) invest in unlocking demand side flexibility and hold a unique understanding of the barriers to and benefits of enabling demand side flexibility. Aggregators may, therefore, play an active role in communications and co-ordination of the deployment of flexibility, helping SOs to optimise outcomes. To enable this option, economic impacts on aggregation may require greater integration into future worlds.

Distributed Energy Resource

ESO
To ensure continued delivery of whole electricity system outcomes, the ESO should retain its role in maintaining national security of supply regardless of the Future World.

Flexibility Coordinator
There may be a role for a Flexibility Coordinator outside of World E, but as a coordinator of market information and a central access point. This would enable market participants to navigate increased range of market platforms and tender information.

Gas

Heat

Local Market Operator

Supplier
The insights for suppliers fail to recognise the impact of different Future Worlds on suppliers as a Balancing Responsible Party (BRP). If World A results in a DSO itself becoming an Aggregator or BRP, this is likely to have an impact on suppliers balancing operations. World A could result in additional cost
and complication for suppliers and these implications will need to be explored as part of a wider Impact Assessment.

**Transmission Connected Generator**

**Transmission Owner**

To require TOs to offer flexibility to each DSO would cause unnecessary complication and risks impacting upon national security of supply. Transmission-level balancing activities including requests to the TO for flexibility should remain within the remit of the ESO.

3. **Do you have any comments on the insights drawn on any of the other roles described?**

Presenting the DSO and DNO as a single stakeholder limits the scope of the modelling process, as well as limiting the ability to define what operations are Network Operation or System Operation respectively. Energy UK believes that, until certainty of the relationships and levels of separation between distribution-level network ownership and system operation are clarified, these should be presented as separate entities reflective of the independent stakeholders of transmission-level TO and ESO.

As previously stated by facilitators at SGAM Workshops and Advisory Group meetings, as well as in the workstream assumptions set out in the Phase 2 Project Initiation Document, DSO functions should not be assumed to be delivered by the DNO in order to maintain a wide range of options. Energy UK agrees that this would be beneficial to the modelling process and to Ofgem’s development of a system operation model to ensure that these stakeholders’ definitions are separated across the Open Networks project.

4. **If you do not feel represented by any of the roles, how do you believe we should capture your role?**

N/A

**Assessing the Worlds**

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

Energy UK broadly agrees with the proposed approach. We would welcome the opportunity to host ENA and Baringa for a discussion of the Impact Assessment with Energy UK members at an appropriate time.

It is vital that the full results of the Impact Assessment are shared publicly and with Ofgem in order to allow a wide review of the information.

2. **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?**

Energy UK broadly agrees with the assessment criteria.

It would be beneficial to incorporate an examination of potential ‘winners’ and ‘losers’ in each world, in terms of stakeholders and technologies, as part of the Commercial Case assessment. The price signals represented in World C should be incorporated into a wider examination of economic and commercial impacts of each model for stakeholders outside of network and system operators. This should include
consideration of the market impacts of different worlds, including the impact of revenue stacking capabilities on market participants.

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

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

The continuation of whole electricity system outcomes including national security of supply should be held as a priority. It may also be appropriate for the summary of the results to draw out the expected impacts on consumers and other stakeholders across each world.

Outside of this, the Impact Assessment should not prioritise across factors, and should rather be an open and neutral analysis of range of potential impacts.

5. **Are there any functions/roles that need to be considered as a priority area for assessment?**

It is vital that the role of the ESO in ensuring whole-system outcomes is a priority within the assessment given the importance of continued capability of the ESO to efficiently maintain a safe and secure national system.

6. **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?**

Energy UK supports the creation of a group to aid in the data gathering section of the impact assessment. The benefits of the subgroup would be dependent on the make-up of the group, which would need to present a balanced range of stakeholders from across the energy industry.

**Key Enablers for the Future**

1. **This is the list of key enablers that we have identified:**
   - Regulatory changes
   - Organisational changes
   - Communications infrastructure
   - IT systems
   - Network visibility and control
   - Market engagement
   - Contract requirements
   - Funding.

   **Are there more key enablers that we should be considering?**

Market investment and competition are core enablers of an efficient smart flexible energy system, as competition across the range of commercial activities and markets in the energy system will increase efficiency and reduce cost by necessity. It may be that this could be incorporated into Market Engagement. Robust competitive markets not only increase investment in flexible assets but also result in greater choice for SOs in balancing and ensuring security of supply.

2. **Do you agree with our short-term investment priorities relating to the key enablers of:**
Energy UK broadly agrees with the short-term investment priorities set out in the consultation document.

Further details of the following high-level positions can be found in Energy UK’s position paper on *Roles and Responsibilities in the Provision of Flexibility*\(^4\). The paper examines some of the core areas of uncertainty in need of resolution over the short term, including enhancing information provision and collaboration across network and system operators, and between network and system operators and flexibility providers.

- **communications,**

Enhancing the communications infrastructure across the energy system is certainly a priority for the energy system. It may be that greater visibility and monitoring capabilities are required before communications are useful, but these capabilities should be put in place ahead of need.

To avoid conflicts and duplication, DNOs and, in future, DSOs should have visibility of the capabilities of DER on distribution networks and the same should be held for DER visibility of network constraints. This will, in part, be enabled by increased communications capabilities across network and system operators. When the ESO wishes to access these resources, the DNO / DSO / relevant third party should facilitate the use of these assets in a way that benefits the national system and the flexibility provider.

- **IT**

For system operations and the use of flexible assets to be optimised, IT systems will need to be drastically improved to enable a level of automation and as near to real-time response capability as is possible. These should be aligned with national systems to ensure ease of inter-SO interactions and information sharing.

- **network visibility & control?**

As has been raised by Government’s Panel of Technical Experts (PTE), data available to the ESO and wider industry from the distribution level is today relatively poor, requiring urgent remedy. DNOs themselves have insufficient visibility of their own networks. Improved monitoring capabilities using smart network assets must be implemented with urgency. These must also be encouraged as part of the developing RIIO-2 price control to ensure capabilities are improved, although roll-out must not be delayed until RIIO-2 is in place.

DER providers urgently need more and better-quality information on where there is capacity to connect, in the form of more granular heatmaps in a common format. In order to provide accurate information on where to connect, DNOs need to have high-quality real-time visibility of their networks. This is something Energy UK notes as lacking, and something that can only be properly resolved through the rollout of network monitoring at LV and MV levels.

Where possible, and with commercially sensitive information exempted, SOs should provide visibility of all flexibility providers connected to their operational region and timely information about market actors’ deployment of flexible assets such as energy storage and network operator deployment of smart network assets. Visibility will help the ESO maintain security of supply, lessen demand forecast errors and limit increases in reserve margins increasing the overall cost-efficiency of the system and the DSO optimise its network, increasing capacity availability for new connections.

The ENA may be well placed to aid or lead in creating and maintaining a central location or platform for stakeholders to find a consistent and integrated view of capacity availability on the integrated distribution and transmission networks.

As an increasing share of generation connects at distribution level, one major operational challenge for the ESO will be maintaining overall system security. National Grid has taken steps to address this lack of information, but will need increased access to data as time goes on. Scarcity of system services may become more acute in future, necessitating new operational arrangements between ESO and DSOs to unlock the capabilities of DER and maintain security on distribution and transmission networks.

3. **Given our short-term priorities, what actions do you consider need to be taken now to address them?**

National Grid, DNOs and Ofgem should coordinate efforts to align the deployment of appropriate smart controls and technologies across the energy system. Where good practice is established, DNOs should be obligated to comply with minimum standards for IT, communications and monitoring capabilities, with an overarching requirement for the further development of a single System Wide Resource Register holding all pertinent information on the state of the network.

DNOs should continue to co-ordinate with each other and Ofgem to ensure the effective roll out of successful lessons learnt from past innovation projects.

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

In terms of the technological capabilities set out in the previous question, these do not differ based on different worlds.

**Proposed Next Steps**

1. **Do you agree with the proposed next steps?**

   Yes.

2. **The Open Networks Project is prioritising areas of least regrets to deliver the benefits of a smart grid as soon as possible.**

   Is there a specific activity within the functions that we have prioritised that you would like us to focus on for short-term delivery?

   Areas of least regrets should be compiled into a document for Ofgem and BEIS review before further action is taken. Whilst awaiting guidance on future actions, ensuring a coordinated approach to implementing enabling actions, including increasing visibility on low voltage networks and making relevant data from that increased visibility available to stakeholders, should be the priority for the Open Networks project.

3. **Is there any additional work that we need to undertake?**

   The Open Networks project should be used to coordinate DNO efforts in developing and rolling out the enabling technologies, as encouraging common standards and processes will be a key enabler of ensuring consistency across the network.