

07/02/2020

Energy UK Response – Key enablers for DSO programme of work and the Long Term Development Statement

Submitted via email only

Energy UK is the trade association for the energy industry with over 100 members spanning every aspect of the energy sector – from established FTSE 100 companies right through to new, growing suppliers and generators, which now make up over half of our membership.

We represent the diverse nature of the UK's energy industry with our members delivering almost all (90%) of both the UK's power generation and energy supply for over 27 million UK homes as well as businesses. The energy industry invests over £13.1bn annually, delivers around £85.6bn in economic activity through its supply chain and interaction with other sectors, and supports over 764,000 jobs in every corner of the country.

Energy UK welcomes the opportunity to respond to this consultation as well as the continued focus on this area of regulation from Ofgem. Energy UK finds this paper to be a valuable and welcome progression of the discourse in this area, offering many sensible improvements to existing monitoring and information provision requirements on DNOs to enable a smart flexible energy system to continue to develop.

Key Points:

- Provision of network data is vital to delivery of decarbonisation, and all available levers should be utilised in the implementation of the Energy Data Taskforce recommendations in this area.
- Standardisation and harmonisation across processes should be implemented across network areas wherever possible to ensure data is accessible.
- Clear conflicts of interest exist in the utilisation of ANM by DNOs. These must be resolved if ANM projects are to be pursued in future.

The positions set out in the below response are high-level views of industry, and more detail may be apparent in respective members' responses.

Energy UK will continue fully to engage in this critical policy area and we welcome any questions from Ofgem or wider stakeholders regarding this response.

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Question Responses

The Long Term Development Statement

- 1. We consider that improvement is required in the visibility of DG and LCTs connected to the distribution network. In addition to DG and LCT connections, can you identify areas for improvement in the current data that is shared in the LTDS?**

Alongside information on growth and location of DG and LCT connections, the LTDS should also include as much information as the Triage process established by the Energy Data Taskforce allows for regarding the state of the network. Asset health and age, current capacity and changes to this capacity since the previous LTDS, and areas of existing constraint should all be noted in the LTDS.

- 2. Can you identify areas for improvement in the presentation of network information in the current FoS?**

We note that Ofgem's report on the 9 August 2019 power outage has called for improvement to the real-time visibility of DER to the DNOs and the ESO including a review of the technical industry codes to achieve this.

In its current format, the FoS is only meaningful to engineers. As we move into a digital age in which data plays an increasing role, this information needs to become more accessible and meaningful to a wider audience. The CIM format works could aid in making this data open, transparent and downloadable.

It would further be beneficial if users were able to select the individual data they want to download via check boxes. Government statistics, such as those provided by the ONS, are a good example of a positive user interface that enables this selective access.

The data would be more useful if load data was provided to accompany the load curves. This means enabling access and downloading of the data underpinning the curve.

- 3. The EDTF and others have identified the need to collate and share 11kV and lower voltage network data. Is there value in creating a sharing mechanism for 11kV and LV network data ahead of the expected roll out of network monitoring and telemetry in RIIO-ED2 and the limited data availability in RIIO-ED1?**

Yes.

Where able to collate this information already, DNOs should share this information via the triage process set out by the Energy Data Taskforce. If the LTDS is able to present a common framework for sharing this data in advance of wider network monitoring capabilities being implemented, this will ensure that there is a level of homogenisation across the type and quality of data being collated, processed, and shared under the LTDS.

It is important that DNOs progress the rollout of network monitoring before RIIO-ED2 to facilitate the development of fully functioning markets before 2023. A net-zero target requires faster progress than can be achieved by waiting for the next price control.

We note that Ofgem's report¹ on the 9 August 2019 power outage called for improvement to the real-time visibility of DER to DNOs and the ESO, including a review of the technical industry codes to achieve this. It would be beneficial for Ofgem to indicate how this is being coordinated across LTDS, DSO enablers, Modernising Energy Data, and other workstreams.

This would further offer welcome clarification that the Ofgem-identified "legacy of poor data quality and high variability in the structure of the disparate DNO data sources" will be addressed including ongoing performance monitoring as part of this work.

- 4. Given the complexity of future distribution networks, static data alone may not satisfy user needs. Should the FoS be enhanced to mandate the development of a common network model to allow power system simulation that each licensee must make available for exchange to users and interested parties? If so, what do you consider to be an appropriate standard?**

Yes.

Equal access to up to date information regarding the state of the network is critical to the ability of market participants to compete effectively in a future energy system. This will also enable third parties to develop innovations by interpreting or processing the data in a way that realises untapped value.

- 5. From a review of industry publications we consider that interoperable standards will underpin future DSO activities. Should the FoS mandate the adoption of a IEC 61970 CIM and IEC 61968 CIM for Distribution Management, such that data is collated and constructed in a manner similar to WPDs CIM innovation project model? Are these standards mature and what are the likely benefits and costs?**

Yes.

Existing standards should be adopted where available to ensure an approach coordinated with wider European and Global frameworks. This includes ensuring that the approach taken to implement innovation like WPD's CIM project is aligned with the most up-to-date approach, rather than the approach used for the innovation project. Where possible, successful innovation projects related to data provision should result in shared best practice to ensure alignment and best value for consumers. Where other network companies do not implement best practice on data, this should be challenged by Ofgem to ensure clarity over why divergence is continuing.

- 6. Should the FoS also be retained in its current Microsoft Excel form? Is there value in this format?**

Yes.

There remains some value in the use of an Excel format in terms of its accessibility, and as such this should be published alongside any other format until an alternative single acceptable format is fully adopted. For example, not all users will have access to the software tools required by the CIM. The FoS should be exportable into both Excel and CIM formats.

Further consideration should be given to the approach to ensure future-proofing of the data. For example, it is expected that there would be value in ensuring data is supplied in a machine-readable format in future as data analytics capabilities continue to develop.

Heatmaps, Direct Needs Identification and Hosting Capacity

¹ https://www.ofgem.gov.uk/system/files/docs/2020/01/9_august_2019_power_outage_report.pdf

7. Ensuring network information remains accessible is a priority. At present there is no formal requirement for the production of heatmaps. In order to ensure future customer can access the required data, should the scope of the LTDS and FoS be extended to mandate the production of heatmaps?

Yes.

The scope of the LTDS and FoS should be extended to mandate heat maps and set minimum standards for these.

As the UK develops a smart flexible energy system and the transition to net zero increases the complexity of distribution networks in terms of connected assets and capabilities, it is important to ensure accurate information is shared with customers to enable efficient investment decisions.

It should be noted that the use of a third party to produce and manage these maps would be acceptable as long as the information can be guaranteed as accurate, in terms of the approach taken to collate and process the information, and as long as the maps meet minimum standards.

**8. Would there be benefit to adopting common guidance or formats on information presentation within heatmaps, including the presentation of technical information and cost information?
What are the barriers to its adoption?**

Yes.

Simplification and harmonisation of the information provided in heatmaps will save costs for customers and improve the level of investment confidence as information can be easily accessed, processed, and interpreted across the UK. Barriers to adoption are based in initial costs of standardisation across DNOs, but this would be an effective and worthwhile investment.

**9. The core focus of the LTDS is to assist users to enter into arrangements with the licensee and evaluate the opportunities for doing so.
Should the scope of the heatmaps include other network needs, such as flexibility requirements?
What is the best mechanism to notify network users of opportunities to enter arrangements with the licensees?**

Yes.

Wherever possible, information on flexibility requirements should be shared alongside information on state of the network to enable appropriate investment decisions and commercial decisions to meet the needs of the system and consumers at lowest cost. Again, the presentation and notification process for this information could be provided by a third party, as long as the information is standardised across network areas. Accessibility would be greatly improved by ensuring a single location that either presents all information or sets out where to find each data set across each network area.

**10. On what frequency should these maps be updated?
Should they be updated as there are changes to the underlying data or periodically?**

Maps should be updated as frequently as is required to ensure that the information provided is accurate, including a regular periodical update and updates based on fundamental changes to underlying data. To clarify, each map should be updated on a regular basis, but should also be given incremental updates where specific changes have been made, for example where network investment has been scheduled or a new constraint has been identified. Guidance should be provided alongside

each map stating when the information was last updated and, where this is due to a change in the underlying data, the nature of the change.

Forecasting of Network Needs

11. Is there a need for a common methodology or principles for estimating load growth? What potential role could the D-FES play in informing the load growth forecasts on the LTDS?

Yes.

Common principles and methodology are preferred by Energy UK and its members, given the simplification that this offers. The D-FES could play a role in load growth forecasts only if the information is deemed accurate. The National Grid FES is specifically targeted at establishing a wide range of possible scenarios, a useful piece for industry, and is not specific enough to justify investment decisions. The D-FES would need to be more specific in order to be relied upon in load growth forecasts.

Overall, the D-FES could play a key role in informing load growth forecasts on the LTDS. There is, however, further work required in standardisation and coordination of the D-FES documents, as well as alignment with the GB-wide FES. We note that products proposed within Workstream 1B (Whole Electricity System Planning and T-D Data Exchange) of the Open Networks 2020 Project Initiation Document may deliver these requirements, but implementation must be in place before the D-Fes can be used as anything more than broad potential scenarios.

Alignment should include quality and granularity of information, the assumptions and calculations used in development, and the timescales set out.

12. Are there any lessons that can be learned from other industry documents such as the ETYS and the NG FES?

Yes.

The National Grid ESO FES process is transparent, well respected, and holds a good amount of stakeholder involvement. Wide industry engagement with the development of the D-FES should be encouraged, replicating the success at GB level to ensure stakeholder engagement, commitment, and acceptance of the subsequent scenarios and documents produced.

13. Do you agree that the LTDS should be enhanced to present the key assumptions for network requirements forecasting and the uptake in LCTs, or is this a role better served by the D-FES or other documents?

Yes.

The requirement to produce the LTDS is binding on DNOs, given that it forms part of the Distribution Licence. As such, the LTDS would be a useful place to provide key assumptions regarding forecasting and uptake in LCTs, as would the D-FES. It may be most appropriate for the LTDS to present this information in more detail, and for the D-FES to refer back to these assumptions in opening sections. DNOs already cross-reference other regulatory documents in their publications, so this would be an acceptable approach.

14. Forecasting tools have been a focus of a number of innovation projects. Are there any mature tools or techniques that could be adopted to enhance the transparency or robustness of the load growth forecasts?

Yes. The ESO has been utilising forecasting tools in its many forms over a number of years. These tools would be a sensible starting point.

IDNOs and the LTDS

15. Do you agree that IDNOs should be issued with a direction to produce a LTDS?

Yes.

Increasing numbers of new connections are on iDNO networks, as such there should be a similar requirement to ensure that this section of network information is not missing in future.

16. What summary information should IDNOs publish? This is currently found in section one of the LTDS FoS, such as information relating to the design and operation of all voltage levels of the distribution network. Please explain your reasoning.

The aim should be to match the information provided by DNOs as we expect that consistency will give better outcomes overall.

17. What information on network data should IDNOs publish? This is currently found in section two of the LTDS FoS. Please explain your reasoning.

The aim should be to match the information provided by DNOs as we expect that consistency will give better outcomes overall.

Delivery Governance of the Form of Statement

18. Do you agree with our proposal on how the LTDS delivery body should be convened and governed?

Yes.

Energy UK would note the importance of ensuring properly mixed representation across segments of industry, ensuring the groups are not dominated by network operators. Users across demand, generation, and flexibility provision should be included in the process, as well as relevant representative groups including the Citizens Advice Bureau.

19. Would you like to nominate an individual to take part in the LTDS working group? Please set out reasons for their inclusion and any qualifying experience the nominated person has to function as a strong contributor to the group.

No.

Energy UK is aware of a number of its members putting forward representatives for this group, and as such will coordinate with those representatives.

Key enablers for DSO

Network Monitoring & Visibility Enablers

20. What network monitoring parameters would you like to have access to? At what frequency?

Energy UK supports sharing of all data held by DNOs under the 'assumed open' principle of the Energy Data Taskforce. This information is paid for by consumer funding and as such should be publically available where it does not cause a concern, as set out by the Energy Data Taskforce Triage process. Once this information is shared both in its raw data format and in the form of network maps, Ofgem and industry will be able to feed in views on areas for improvement, expected to focus on the need for improved low voltage monitoring capabilities.

21. What would enhanced 33kV network monitoring enable that cannot be undertaken today?

Investment planning for generators, flexibility providers, local authorities, and wider consumers cannot be effectively undertaken without simplification and greater granularity across 33kV networks. As the UK continues to transition to net zero, clarity will enable decarbonisation of power, heat, industry and transport at a faster rate and at lowest cost to consumers.

Increased network visibility coupled with the recommendations from the EDTF would mean that EUK member companies can make more informed investment decisions. DER resource registers in isolation, without associated network information, will not provide the whole picture.

Allowing the private sector to invest effectively should reduce costs for networks, and as such reduce costs for consumers. Costs would be recovered through business models rather than being directly recouped from consumers.

22. What would enhanced 11kV network monitoring enable that cannot be undertaken today?

Same as above.

23. What would enhanced LV network monitoring enable that cannot be undertaken today?

Investment planning would again be greatly improved by increased granularity on LV networks, but in this instance the clarity would enable faster decarbonisation for individuals and allow for innovation in aggregation and energy retail business models. Without this level of granularity, charging methodologies cannot be updated to give more reflective price signals that encourage behavioural changes from customers based on the needs of the system. This is expected to result in lower cost to consumers as, alongside the provision of flexibility services, it will result in lower reinforcement costs across networks.

24. What constraints in data systems architecture do you perceive are limiting network monitoring and visibility?

Network and system operator investment in up-to-date systems architecture is limiting the ability of networks to monitor and present information on the state of the network. The existing monitoring hardware is not sufficient, and the overarching software supporting that data gathering and processing is equally below the level required for accurate and granular information provision.

The existing RIIO framework does not encourage investment in this technology and, alongside an apparent assumption from DNOs that smart metering data will solve all monitoring issues, has not been fit for purpose in this area. The RIIO-2 framework must resolve this, but delivery such a core enabler of decarbonisation, in the form of access to granular and accurate information on the state of the network, cannot be delayed until RIIO-2 implementation.

Currently DNO system architecture is 'islanded', by which we mean that there is no integration between different systems, for example GIS and asset management, and this should be addressed across DNOs. WPD, for example, recently announced that it will CGI's Integrated Network Model (INM) solution to create a data integration platform.

The LTDS and wider implementation of the recommendations of the Energy Data Taskforce should act as a lever with which this issue can be resolved at pace.

Flexibility trading enablers

25. What operational data is most important to prioritise opening up first and why?

Whatever data is already held by DNOs should be shared under the triage process established by the Energy Data Taskforce. This said, network topology data is of most immediate use to flexibility providers. Energy UK remains supportive of the requirements of C-16 being reflected in Distribution level requirements.

26. How does a lack of access to this data impact the delivery of flexibility to the system?

Flexibility delivery is impacted in two main forms, existing flexibility optimisation and investment in flexibility.

Existing assets and connected customers may be able to change behaviours or provide additional services if data is accessible, reducing impact on the network and giving DSO actors access to a wider portfolio of flexible assets at low upfront cost.

Those wishing to connect new assets at distribution level, or upgrade existing connections, would also be able to benefit from the provision of more granular data. This would ensure that investment decisions were made based on the most appropriate location to place a flexible asset or invest in demand side-response capabilities.

Flexibility dispatch and control enablers

27. Are there any real or perceived conflicts of interest with DNOs owning and operating ANM platforms at scale? What additional protections could be required for ANM customers?

A wide range of potential conflicts of interest exist when DNOs own or operate any form of flexible asset, as set out in justification for the separation of DNOs from ownership or operation of any generation assets, and the partial separation of DNOs from storage assets. The ownership or operation of an ANM platform of any kind has resulted in a range of concerns from many Energy UK members, and it may be more appropriate for this function to be tendered out to the market to avoid these conflicts entirely.

These potential conflicts include:

- The conflict between DNO and ESO in balancing actions, wherein a DNO could instigate an action that requires further balancing activity from the ESO.
- Conflicts with markets for flexibility, where the DNO may push for participation in an ANM scheme or utilise network assets instead of tendering for flexibility from the market, damaging the investment case for flexibility and undercutting the market.
- The potential for DNOs to use ANM to push network assets to their limit at a faster rate, connecting increasing numbers of customers to the legal limits of allowable network capacity to justify role creep / use lower connection offers to encourage connection in order to eventually justify further investment in reinforcement in areas not previously constrained.

Any ANM agreements with connecting customers must, therefore, include specific requirements to ensure their use is limited both in terms of contract length and number of events per customer. This should include a requirement to tender for market flexibility and a requirement to reinforce after a certain time limit if a market solution is not apparent.

28. In order to preserve optionality over ANM scheme operations, what technical and commercial protections, such as technical ring-fencing, may be required?

Ofgem should apply lessons learned in the separation of ESO from TO, applying these to the level of separation of DNO and DSO activities including ANM.

29. Please provide real world examples where lacking timely access to usable network data, or regulatory barriers, have limited your ability to provide a DSO function or support service. Please submit any relevant evidence and documentation of examples cited.

Energy UK would argue that this is a problematic question, as DSO functions are not yet fully formed, and as such it is primarily DNOs, with full access to network data, who are exploring provision of DSO functions. We would direct you to Energy UK members' responses for specific examples outside of DNO activity.

30. Are there any other issues related to enabling DSO that have not been considered that you think are important? Please provide details of your considerations.

Other issues that must be explored include:

- The merit order between network assets, ANM arrangements, flexibility markets, and reinforcement.
- The balance of national needs including the need to decarbonise the energy system against the needs of the DNO, for example in the case of connecting more low carbon assets vs. deferring network investment.