

National Grid ESO – response to Ofgem consultation ‘ Key enablers for DSO programme of work and the Long Term Development Statement’

Question 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?

We support the need for improvements in the visibility of DG and LCTs connected to the distribution network. Through initiatives such as the development of the ESO data portal and our work with the ENA Open Networks project, we are publishing additional ESO data relating to DG and LCTs.

Whilst we already receive DG and LCT data directly from service providers and also from DNOs, more granular information would help National Grid ESO more efficiently plan and operate the national electricity transmission system potentially reducing the volume of balancing services required and therefore costs to the consumer. This visibility needs to include location, capacity and technology. Both real (MW) and apparent (MVar) power should be included.

In addition we would advocate greater granularity of connected demand users. It is only by considering both generation and demand impacts that you can understand the behavior and therefore needs of a distribution network.

Question 2) Can you identify areas for improvement in the presentation of network information in the current FoS?

Data should be provided in an interoperable format with consistent data definitions and as such be machine readable.

Question 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?

There could be value in creating such a sharing mechanism. In the absence of full information, partial or incomplete data fields should be considered as may be of value to data miners or other innovators. However we would also welcome better visibility of 132kV and 33kV network data, particularly on a more frequent basis.

On lower voltage data, we would advocate initial focus on parts of the network where there is the greatest value in data sharing . For example where parts of the distribution network have connected large amounts of 11kV resources, there is a more immediate value to be realized through ensuring the impacts of these resources are understood at a transmission level.

If disaggregated data is not available then a possible method to achieve this could be through appropriate aggregation of data for lower voltage connections.

Question 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 – in order to enable unhindered competition in the provision of services to both transmission and distribution system operators, providers and interested parties will need the appropriate network models to help evaluate where they may be best placed to provide a given service.

Question 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?

Standardised data is key. Each network operator should provide a full network representation that others can use to extract relevant data or merge models.

It would be more cost effective to adopt a common standard, such as CGMEs, which would allow the purchase of off the shelf packages capable of working with CIM files.

Question 6) Should the FoS also be retained in its current Excel form? Is there value in this format?

Data should be published in a machine readable format. Whilst an excel form seems a sensible first step as the data is then widely available to stakeholders, the current format can make it difficult to extract data. Simple data tables are preferred ideally with APIs.

Question 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?

Our stakeholders have told us there is a need to simplify the information we provide in our publications by using more visuals and heatmaps. We are exploring the use of heatmaps through our Pathfinder projects and have received positive feedback that this is a step in the right direction.

However this should not be the only mechanism for data provision. Some stakeholders will potentially prefer the use of raw data to produce their own tailored form of visual information.

Question 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?

Definitely. A common approach to data and information visibility creates significant benefit for users operating across multiple DNO areas. This approach should be taken to format and definitions as well as level of data provided.

Question 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?

It would seem sensible to adopt a common method for highlighting opportunities for third parties. This would ensure consistent treatment and a familiar experience for users, no matter where they were connecting in GB.

Consideration should also be given to the need for co-ordination between transmission and distribution system needs, ensuring that service providers see a level playing field, and that the impact of options on the whole electricity system is considered.

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

Ideally information presented should be accurate and consistent with data available. Whilst we recognize the need to understand the overall cost-benefit of updating information presented to stakeholders, there may be precedence set elsewhere (for example we are required to update our TEC register weekly basis). Where there is justifiable misalignment then this should be clearly indicated to avoid confusion.

Question 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?

It would seem logical to have a common methodology or principles for load growth estimation to give consistency to the overall picture of load growth on the whole system. Insights from the D-FES could be used to inform rate of decarbonization which could inform these estimates at a local level.

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

We believe that there are lessons that can be learnt from the ETYS and NG FES. We have listed our initial thoughts below and would also be happy to discuss further with stakeholders through the suggested LTDS working group;

- Stakeholders value a standard approach for identifying system needs that is consulted on with industry and is repeatable and based on a common methodology.
- By using a scenario-based approach we are able to capture a credible range across which we assess our system needs without forecasting the expected pathway.
- We are mindful that focus on the Winter Peak requirements alone will not capture the full range of needs given the changes we are seeing to both generation and demand and are exploring using a probabilistic approach to identify the changing capabilities of the network across the year. We would recommend investigating such techniques for their applicability to LTDS.

Question 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?

Key assumptions made in development of the LTDS should be transparently available to stakeholders. They should be listed in the most appropriate industry document and cross-referenced as applicable.

Question 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?

Econometric and end use models are preferable to trend analysis models. Consistent econometric assumptions between DNOs are needed to give robust coherent forecasts of whole system load growth.

Focus should similarly be given to DER forecasting to facilitate an overview balanced view of a network.

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

IDNO data should also be made available.

Question 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.

IDNOs need to share data to the same level and format as DNOs, i.e. the need for consistency is the same irrespective of the distribution network ownership status

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

IDNOs need to publish equivalent data in the same format as DNOs.

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

We support Ofgem's proposal on the LTDS delivery body.

Question 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.

We would be happy to participate in the LTDS working group as we believe we have insights from the ETYS and GB FES that would be of value. Our nominated representative would be Griffin John who works in the team which develops the ETYS (email griffin.john@nationalgrideso.com).

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

We recognize the challenges in providing monitoring across the whole electricity system, particularly at lower voltage levels. Priority should be given to monitoring where it provides demonstrable present or future value for consumers.

From an ESO perspective we could see value in having a more transparent understanding of lower voltage network running arrangements and associated data. This would allow us to more efficiently operate the transmission system. For example, understanding where demand transfers have taken place would enable us to more accurately forecast system demand and therefore balancing requirements.

In addition greater network monitoring could also help support better transmission – distribution co-ordination ensuring that procured system services will not cause disruption to local networks.

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

From a transmission perspective, a better understanding of the 33kV network would enable better utilization of service providers, coupled with the ability for the ESO to more accurately understand regional demand and generation patterns. Better data of these networks will also lead to an improved planning, scheduling and dispatch process as greater certainty over regional fluctuations will be available.

From a distribution perspective we would expect that enhanced 33kV monitoring would facilitate DSO competencies by allowing DNOs to optimize their network (e.g. power flows, voltage).

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

As above but would likely extend the ability for smaller DER to provide basic services to both DSO and ESO, without the need for additional infrastructure to be delivered. It would enable better use of the recent implementation of the ‘Requirements for Generators’, as all new generation down to 1MW can provide remote controllability to assist with managing respective networks.

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

Any additional monitoring or data that is available from LV networks will help the ESO to manage increasing demand errors. In particular real time demand and generation data coupled with historic data on which to build models, will allow better transmission demand forecasts and enable provision of whole system demand forecasts, thus reducing costs of system operation.

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

Lack of secure information links between the ESO and DNOs is currently limiting the ability to share operational data. Varying quality and disparate comms/metering for distribution connections is also a current issue. A possible solution is to recommend a standard for comms/metering for distribution

connections. In addition common data structures and definitions would allow the ESO to compile data across networks to aid whole system operation and forecasting.

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

We would prioritise basic MW and MVar data that would facilitate DER providing flexibility services for transmission and distribution needs. Data appropriate to ANM operation (e.g. headroom and footroom available) is also important to ensure that service volumes are deliverable and allow DER to participate in multiple markets when connected behind a DNO ANM.

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

Lack of access to operational data can reduce the ESO's confidence in service delivery which could lead to over-procurement or inability to participate in a particular service.

Question 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?

There is a lack of clarity between the technical use of an ANM scheme to efficiently manage distribution networks and the commercial development of flexibility markets. Transparency should be provided to service providers ahead of connection to an ANM scheme in terms of commercial impact on the party (e.g. participation in flexibility markets). The role and responsibilities of the incumbent DNO should be made clearer as part of this process.

We would also be interested to understand whether any ANM schemes effectively block routes to markets for connected parties. If so, processes need to be developed to facilitate their access where there is found to be overall consumer value.

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

We are relatively comfortable with the current technical approach to ANMs, recognizing the importance of operational oversight by the incumbent DNO. Hence, through initiatives like the Regional Development Programmes (RDPs) we are working with DNOs to ensure visibility to all network operators for technical system management.

Commercial relationships are different, and service providers should be able to provide services through a variety of intermediaries for both distribution and transmission system needs. Such an approach will increase market liquidity thereby reducing costs for the end consumer. Service provision should not be tied to a particular route to market (e.g. ANM). Service providers need to have a clearly identified source of flexibility service instructions when received via ANM, or some other source, to ensure the origin is traceable and adherence to the instruction can be managed.

Question 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 any examples cited.

Through the last few years we have initiated work with DNOs to identify and better share network data to help efficient whole system design and operation. Through initiatives such as Regional Development Programmes (RDPs) and Appendix G trials we have unlocked additional capacity across the transmission – distribution interface. Whilst such ‘design by doing’ activities ultimately can make a significant difference, we recognize the additional time this can take to deliver. Greater regulatory clarity on roles and responsibilities across the transmission – distribution interface could help accelerate such processes.

Question 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.

Whilst arguably implicit in this consultation, it is important to ensure that there is sufficient visibility between the ESO and DNOs to co-ordinate and manage overall system operation. Whilst there is a requirement for this through Grid Code provisions, and we note the forthcoming Open Networks proposal to improve this, we believe that more still needs to be done. Initiatives developed through this consultation may provide an efficient way to discharge improvements which will facilitate transition to Net Zero.

Standardisation of IT interfaces, including to ANM schemes, should also be considered as an enabler. Through our interfaces with different DNO systems (even within a single organization) we have experienced a need to adopt differing interface requirements. This may be a barrier for third parties also.