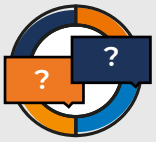
Flexr: the energy data sharing service

Consultation on a DNO data provision and standardisation service to facilitate the energy market transition

ElectraLink

Introduction



Please refer to questions 1 and 2

The purpose of this consultation is to gather input and feedback from stakeholders on a new core service that we, ElectraLink, will bring to the market in partnership with the GB Distribution Network Operators (DNOs). The new service, called 'Flexr', will be a DNO data provision and standardisation service to facilitate the energy market transition. Flexr will enable and accelerate flexibility markets and platforms by enabling market participants to register for data access to allow the discovery of triaged information about DNO resources and Distributed Energy Resources (DERs). Flexr will accelerate open platform participation and therefore accelerate the GB flexible energy market, ensuring secure and controlled open platform delivery.

The development of Flexr involves a wide range of stakeholders. Your input is invaluable in ensuring that all stakeholders' needs are reflected so that we deliver a solution that brings the maximum benefit to the energy industry and most importantly, its customers.

ElectraLink is jointly owned by the DNOs and has delivered their licence condition to provide a data transfer service (DTS), which underpins the operation of the GB retail energy market, for over 20 years. We procure and manage these services on their behalf, as well as deliver data transfer, data integration and data management services. ElectraLink's unique delivery role, together with the company's data solutions expertise, has been a key part in the increase in competition and the growth of innovative business models in the GB energy market.

We have been monitoring the transformation of the energy system and have taken note of the direction being provided by Ofgem, BEIS, and the Energy Data Taskforce, including the increasing requirement to share data and deliver greater flexibility in a co-ordinated way. We understand that the DNOs will have to implement technology solutions to ensure an open, level playing field for the flexibility market, while ensuring that data and network security are maintained. At the same time, other market participants will need to share information with the DNOs to unlock new value streams.

Flexr will make available elements of the energy retail market data that ElectraLink has been collecting and analysing since 2012. Flexr will also enable co-ordinated, controlled and secure access to DNO data for their stakeholders, including the ESO, flexibility service providers, suppliers and aggregators. The availability of these two datasets will lower the bar for all competitors in the flexibility space, including existing players and new entrants. ElectraLink will initially deliver a minimum viable product (MVP), which will include enough basic functionality to prove the concept of Flexr before we develop it further with additional data sets. The MVP, delivered in 2020, will comprise:

- A Distributed Energy Resources (DER) Register populated from ElectraLink's dataset of 13,720 DER and Distributed Generation (DG) customers (more are added each day) and from data sourced from DER providers
- An open digital portal (Open Portal), which will be the controlled access-point to the DNO and DER data registers for third parties
- Integration with a pathfinder DNO, which will surface network data on the Open Portal and will evidence the impact of network data access on the acceleration of the flexibility market

Thank you for taking the time to complete this consultation. To provide your responses please complete this Google Form. If you are unable to use Google Form, we can provide you with a Microsoft Word version. To receive this version please email Flexr@electralink.co.uk. The submission deadline is 6pm on the 29th of May 2020.

1. What is Flexr?

Flexr is a DNO data provision and standardisation service designed to facilitate the energy market transition by lowering the bar for all competition in the flexibility space. Flexr provides non-differentiated services by reducing costs and simplifying access to market data for flexibility providers. It will enable increased innovation in the flexibility market space and reduce barriers to entry for stakeholders. In addition, Flexr will demonstrate how a central data service can enhance planning, forecasting, operation and whole of system integration.

In 2020, Flexr will be made up of two components: DER and DNO registers. We will also deliver an Open Portal to enable access to both of these sets of data.

The primary concern of Flexr is security and access control. Flexr will ensure that all data is totally secured and access to data will be controlled based on Flexr users' permissions and identities. Flexr will enable only the right actor to access the right data at the right time.

Systems integration will underpin the entire service. By accessing the DNO, and ultimately DER, information technology and operational technology systems using a modern integration platform, Flexr will access key DNO and DER data platforms in a highly secure and controlled way.

Flexr will observe data changes and ensure that the right market events are triggered. Systems integration will enable the following DNO data to be triaged and shared:

- ***Planning data:*** e.g. locational headroom data held in the network modelling tools
- ***Asset data:*** e.g. load and generation forecast data held in the forecasting tools
- ***Operational data:*** e.g. network constraints held in the active network management system
- ***Real time data:*** e.g. network resource requirements held in the active network management system

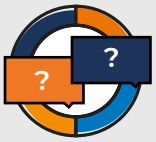
Table 1 below shows the data that will start to become accessible on Flexr, from Q4 2020, as it becomes available (i.e. not all data will be available on day one. These data items relate to the two components of Flexr being offered in 2020; namely access to DER data and DNO data. The arrows indicate data that could be made accessible in near real-time in the future.

By providing and standardising this data in a co-ordinated, controlled and secure manner, Flexr will lower the bar for all competition in the flexibility space for both existing players and new entrants.

Please refer to questions 3 to 5

Table 1: Data to ultimately be shared on Flexr

Planning data	Asset data	Operational data	Near real-time data
DNO DATA			
Maximum load index	Substation asset data	Working network topology	Power flows (132kV, 33kV, 11kV and LV)
132kV/33kV load flow models	Overhead lines and cables data	Flexibility resource and network availability	Network capacity
Local headroom data	Static network topology	Network Outage	DSO flexibility service providers and embedded generation requirements
Reinforcement planning data	Forecasts for network changes	Network Status →	
Connection queues	Load forecasting	Network capacity constraints →	
Distribution network drawings	Generation forecasting	Dispatch and control status for distribution network connected generation →	
Load forecasting			
DER DATA			
	Flexibility resources forecasting	DER information >1MW and <1MW (Builds on DNOs' "system wide resource register") →	
		Dispatch and control status →	



Please refer to questions 6 to 22

The Open Portal will be a secure and controlled website, which will be used by stakeholders to access the data items listed in Table 1. It will enable users to:

- Register to gain access to the DNO flexibility data and data services through the intuitive registration wizard.
- Access triaged DNO resource information pertaining to planning, network assets and operations.
- Access triaged DER information such as type, location, generation and consumption of DERs.
- Subscribe to key common flexibility market service data feeds and run reports on how participants are using Flexr and how the energy market is working.

Please refer to questions 23 to 25

2. Why the industry needs to act now

As the electricity industry moves towards becoming part of a decarbonised, interlinked "whole" energy system, the provision of transparent data between stakeholders becomes increasingly important. The industry events and initiatives described below demonstrate the increasing importance of sharing data between DNOs and their stakeholders.

Table 2 summarises the need for change, the impact on the electricity industry and how Flexr will help to deliver the required changes.

Industry event/ initiative	RIIO ED2	The Energy Data Taskforce
Key themes	• Ofgem will expect progress with delivery of Energy Data Taskforce recommendations. • Ofgem will expect the electricity industry to be proactively lowering the barriers to flexibility market entrants. • Ofgem will expect the DNOs to be actively implementing the recommendations of the Open Networks Project.	• New roles and data functions are needed at the heart of the industry, which will accelerate the DSO transition by making data available and accessible at the point where it is needed.
What this means for the industry	• The DNOs need to improve and standardise communications between themselves and the Electricity System Operator (ESO). • The DNOs need to facilitate increased sharing of Distributed Energy Resources (DER) and flexibility service providers' data. • The DNOs will need to uncover DNO asset, operation, planning and real-time data. • The DNOs will need to facilitate flexibility trading platform development over the RIIO - ED2 investment period as neutral market facilitators.	• The industry needs to provide 'openness triage'. • The industry needs to provide data governance. • The industry needs to set up a data catalogue. • The industry should set up digital twins.
How Flexr can help deliver this change	• By making data readily available and enabling machine-to-machine data access, Flexr will enable standardisation and efficiencies in data sharing with the ESO and other stakeholders in a whole of system environment. • A DER register will uncover DER data by linking to DER providers directly, by linking with databases that include relevant data and by using ElectraLink's existing DER data set. In future, the DER register will also be able to infer DER data from metered consumption data (e.g. to identify location of low carbon technologies). • A DNO network data register will connect to DNO systems to uncover data as required. • A central data service will reduce barriers for DER operators and other stakeholders to participate in Flexibility markets. The DER register will help flexibility platforms to deliver flexibility more effectively by giving them detailed access to the DER landscape. The DNO register will enable market platforms to work.	• Openness triage will be a core feature of Flexr. • Flexr will be subject to code governance to ensure a level playing field for all stakeholders. There is more information in the Governance section of this consultation. • Flexr will link to the ONS central data catalogue, as well as other data catalogues being developed by other utilities/sectors. • The data in the DNO network and DER registers will accelerate the development of digital twins for electricity distribution.

Table 2

Industry event/ initiative	3rd Energy Package and ENTSO-E	Ofgem and flexibility
Key themes	• It is reasonable to expect some similarities between the approaches adopted by the UK and the EU.	• Ofgem is currently finalising its position on an overarching approach. • It is likely that Ofgem will require the industry to provide data sharing infrastructure in the RIIO-ED2 period to accelerate and facilitate flexibility and innovation in this space.
What this means for the industry	• Flexibility trading and procurement platform(s) are needed. • Standards for flexibility, ensuring cyber security and ensuring interoperability, are needed.	• The electricity industry will be expected to reduce barriers to market participants and where appropriate, facilitate the "core services" for flexibility market enablement. • The DNOs need to be proactively ready for future licence conditions or requirements on data sharing.
How Flexr can help deliver this change	• Flexr, and its support for enabling Ofgem's Common Services, will reduce barriers for new market entrants and increase innovation in the flexibility platform space. • Flexr will leverage best of class, existing data sharing technology to share data with UK electricity suppliers to ensure that cyber security and data sharing standards are enshrined at the core of the service.	• Flexr will make it easier for new market platforms to access the data they need in a standardised, cost effective, efficiently governed and consistent manner. • Flexr will provide data to enable and accelerate (by third parties) the "core flexibility market services" of coordination, flexibility procurement, dispatch and control, platform transaction settlement and analytics and feedback by providing data to third parties as required by the industry. • Flexr will proactively ensure that the required data sharing infrastructure is in place before it is mandated.

Table 2

Please refer to questions 26 to 28

Progress to date

The Open Networks Project's System Wide Resource Register is a foundation for Flexr. The System Wide Resource Register is spreadsheet-based and links to individual DNO websites. Most of the DER customers included in the System Wide Resource Register have an export capacity of 1MW and above and this information is updated on a monthly basis.

In addition a DCUSA change has been initiated; DCP 350 Creation of Embedded Capacity Registers was raised in July 2019, and is currently in the consultation phase. It will look to add additional requirements on DNOs in regard to data sharing. If accepted, this will require the DNOs to create a national, public register of all sites that use their networks and influence the operation of the GB power market.

3. The benefits Flexr will bring to the market

When developing the plans for Flexr, the primary drivers were to make system data more open and transparent, bring efficiencies and improvements to the service provided by the DNOs, reduce cost to customers, and increase the rate of decarbonisation within the electricity sector.

Accelerate decarbonisation

Flexibility is recognised as one of the key factors in the decarbonisation of the electricity system. Flexr will enable and accelerate flexibility markets by enabling market participants to discover and access triaged information about DNO resources, DERs and flexibility market participants. Flexr will accelerate platform participation and therefore accelerate the GB flexible energy market.

Make system data more open and transparent

Making system data more open and transparent is central to the recommendations of the Energy Data Taskforce. Flexr will share large volumes of data in near real time (where applicable) to enable a joined-up operation across multiple platforms and systems.

Critically, Flexr will address the challenge of making data more open while maintaining high levels of data security, something that ElectraLink has a proven track record of achieving. ElectraLink currently fulfils the role of the 'trusted processor' for energy market data. The Energy Market Data Hub (the EMDH), managed by ElectraLink, transfers the data required to support the retail energy market. Under the governance of the industry (outlined in the Data Transfer Service Agreement), we can make this data available to market participants (connected to the DTS and other market commentators) and regulators. We bring this experience to the development and governance of Flexr (please see the governance section, later in this consultation for further information).

Bring efficiencies and improvements to the service being provided by the DNOs

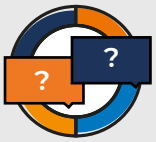
The industry has largely been "learning by doing" through innovation projects and trials, while the network companies work towards reaching consensus on DSO issues through the Open Networks Project. Flexr will build on the work of the Open Networks Project and provide a single solution to data surfacing and its governance for all six GB DNOs. This approach will bring efficiencies to the unbundled electricity system by breaking down potential data silos, and standardising and simplifying data exchange between parties. Flexr will provide an improved service to both the DNO customers and their stakeholders.

Reduce costs to customers

In ElectraLink's role as trusted data processors of the data that is transferred over our Energy Market Data Hub, we already have governed access to much of the data that we require for the delivery of Flexr. This approach will reduce the cost of these services to customers.

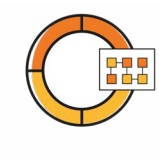
Similarly, this consolidated approach will reduce the cost of procurement across the system; an efficiency that will be reflected in the cost to customers.

By developing Flexr on the ElectraLink's Energy Market Data Hub, we will leverage enterprise grade technology and best in market agreed levels of service to greatly reduce the time to market and delivery programme costs of Flexr.



Please refer to questions 29 to 31

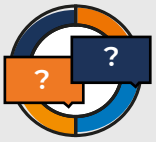
4. What will Flexr enable and accelerate first?



Flexr will surface data relating to the DNOs and the DER connected to them, in order to enable a wide range of use cases where data needs to be shared between stakeholders across the unbundled energy system. Flexr will be able to share large volumes of data in near real time to enable joined-up operation across multiple platforms and systems.

Flexr is currently being planned to be able to provide bespoke data flows to the operators of Common Flexibility Market Services to enable and accelerate their development by other parties. This would facilitate and accelerate the basic functions that Ofgem has identified as vital to the future GB energy market:

- Coordination: Coordinating platform tasks and facilitating data flows; harmonisation of standards and principles, in alignment with external platforms and markets; underpinned by conflict avoidance.
- Flexibility procurement: Attracting flexibility providers and purchasers to the market, by communicating requirements and availability, together with matching providers and purchasers.
- Dispatch and control: Sending signals to dispatch assets; notification of asset dispatch and verification of asset dispatch.
- Platform transaction settlement: Verification of service against transaction and settlement of transactions.
- Analytics and feedback: Network analytics, response times etc.; counterparty scoring and review identification of market faults.



Please refer to questions 32 to 34

5. Stakeholder engagement

In the development of Flexr, we have engaged with a number of key stakeholders including Ofgem, BEIS, and the ESO. We recognise the importance of engagement throughout the delivery of Flexr. We have identified the following groups for engagement:

Please refer to question 35

6. Options to govern Flexr

The need to govern central data services

Effective governance of the Flexr data service is key in delivering a fair, robust, level playing field for all industry parties, either existing or for new entrants. In delivering the Flexr service, a proportionate level of regulatory governance for all participants operating in the market will need to be established, whilst enabling innovation, continued market development, and ensuring fluidity so that Flexr can adapt to change, new solutions, services and the changing needs of market participants. The reliance on the appropriate exchange of data between multiple participants through a central market hub is essential in realising the value potential of Flexr.

There are three options for governing Flexr post the initial phase at the end of 2020.

Option 1 – DCUSA Governance

As the current code manager for DCUSA (the Distribution Connection and Use of System Agreement), ElectraLink is uniquely placed and has the in-house expertise to use the current agreement and support the expansion of the regulatory governance that is required to support the Flexr solution. This option sets out the opportunity for DCUSA to be used as the 'regulatory hub' via the addition of a DCUSA Schedule, additional subsidiary regulatory governance documents and a user agreement for Flexr.

ElectraLink has given detailed consideration as to how the current DCUSA agreement could be evolved without impacting current industry 'business as usual' activities. The expansion of DCUSA, using the addition of an abridged schedule, would enable the required industry governance to be developed in parallel with the development of the Flexr solution and avoid the establishment of a new multi-party agreement.

Building on the DCUSA governance framework provides robust foundations to expand the existing agreement with minimal industry regulatory change. By default, it develops a regulatory governance roadmap that is compliant with BEIS and Ofgem's Significant Code Review (SCR) and the enablement of a single Network Code. DCUSA offers an established industry change process and a clearly defined model for determining a level playing field in terms of market participant rights.

With similar principles to the Data Transfer Services Agreement (DTSA), DCUSA is a multi-party agreement, which, for DNOs as adopters of a central data service, would enable a simple extension in scope of the obligations under the Agreement by acceding to the Abridged Schedule. For additional users of the system over time, the Abridged Schedule would accommodate wider market participants wishing to access the central data service, whilst only being bound to the relevant governance obligations directly related to the central market solution.

The proposed establishment of a separate Flexr User Group and overarching Steering Group enables the same measures in terms of a level playing field, value for money and cost transparency. The Steering Group will oversee the overall operation of Flexr, and the User Group will focus on the proportionate level of regulatory governance for all Flexr users. Again, a level playing field will be established by membership of the Flexr User Group being representative of the service users.

How it would work

- ElectraLink would establish the necessary regulatory governance framework via DCUSA
- A DCUSA Schedule will be developed with a change proposal to reflect the requirements of the Flexr Service
- A separate User Agreement will be developed to provision for terms and conditions and any user requirements
- The Subsidiary Governance Documents will provide governance and quality management for the Flexr Service

Principles

- Unique opportunity to expand DCUSA enabling a regulatory governance framework to support Flexr
- Independent, open and transparent - DCUSA is an established, transparent regulatory Code
- Additional Schedules would enable DCUSA to become the 'regulatory hub'
- Enables a route map for future Network Code developments driven by the Significant Code Review
- Existing knowledge - builds on ElectraLink's knowledge of governing central industry systems and processes

Option 2 – DTSA Governance

This option takes a current and recognised industry agreement, the Data Transfer Services Agreement (DTSA), and proposes to use it as a foundation to build the legal and regulatory governance structure. Whilst Flexr would not be 'landed' in DTSA, similar principles would be utilised. This option would build on existing experience and learning from a well-defined, adaptable and developed industry agreement.

ElectraLink has first-hand experience of the delivery and management of the Data Transfer Service (DTS) and the associated legal and governance framework, and is responsible for its on-going management. The operation of the DTS demonstrates how a multi-party agreement can be established, which ensures that all market participants acceding to the DTS through Data Transfer Service Agreement (DTSA) have the confidence that data transfer is provided in a fair and transparent manner.

The DTS User Group provides the appropriate separation between the operation and governance of the service, enabling all users to receive a central data service that is governed fairly through cross-industry representation. This approach has ensured a proportionate level of regulatory governance whilst not stifling innovation.

How it would work

- Using the DTSA model, ElectraLink would adopt the role of 'Service Controller'
- ElectraLink would take on board learning and principles of the DTSA and use this as a foundation
- Whilst utilising DTSA principles, this would be tailored appropriately for the Flexr Service
- ElectraLink would consider any new Flexr specific requirements
- ElectraLink would develop aligned legal and governance documents
- The subsidiary governance documents will provide governance and quality management for the Flexr Service

Principles

- Established service agreement - able to drive a regulatory and governance solution which develops and builds on an already well established ElectraLink service
- Self-governing and independent – the DTSA is a largely self-governing agreement which separates ElectraLink from participants and provides independence
- Tried and tested - updated and honed over 20 years of in practice use, the DTSA is reflective of all participants and businesses of all scales from small to large suppliers

Option 3 – Bespoke "from scratch" governance arrangements

This option proposes a bespoke legal and governance approach not influenced by existing approaches but tailored specifically for the Flexr Service. This would be delivered by a combination of a new Multi-Party Agreement, User Agreement and Suite of Governance Documents.

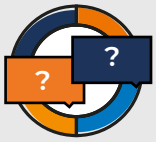
ElectraLink has experience of delivering bespoke industry legal and governance solutions to enable regulated services and data solutions. This option would start from the minimum requirements and explore what is needed as a governance and legal solution. At a base level this is similar to Option One in structure, but this approach allows for a bespoke solution that is not integrated into an existing industry code. Detailed requirements could be worked on in collaboration with DNOs and anticipated users.

How it would work

- A new Flexr Multi Party Agreement (MPA) will set out the arrangements for DNOs and provision the requirement for the Flexr Services Agreement
- A new Flexr Services Agreement will be developed containing Terms and Conditions for Flexr providers and other parties and any additional Schedules
- The Subsidiary Governance Documents will provide governance and quality management for the Flexr service

Principles

- Tailored - this approach would be developed 'from scratch' and specifically tailored to the Flexr Service
- Flexible - not tied into existing industry agreements and codes which provides flexibility in design
- Designed with stakeholders - this option will be developed and agreed with DNOs' legal and commercial teams
- Existing knowledge - builds on ElectraLink's knowledge of establishing and governing central industry systems and processes



Please refer to questions 36 to 38

7. Options to fund Flexr

How Flexr will be funded in 2020

The development and delivery during 2020 of the Flexr service described in Section 2 will cost £3.5 million. It will be funded by ElectraLink from its reserves generated from the company's commercial activities. Flexr services will be free to use during this period.

How Flexr will be funded beyond 2020

There are a number of options available to fund the development and delivery of Flexr beyond the end of 2020. The costs associated with certain electricity industry initiatives and investments are socialised across all customers via DNO charges. On the other hand, the costs of other activities are funded, at least in part, directly by the users who receive the value; essentially a pay for use model. An example of this is new customer connections.

We have identified the following options to fund the development and delivery of Flexr beyond the end of 2020:

1. **Recovery via the RIIO ED2 price control mechanism or a regulated cost recovery mechanism:** The costs would be captured and recovered during the RIIO price control periods for electricity distribution.
2. **Flexr services paid for by users:** The costs would be recovered via the users of the Flexr service, i.e. those receiving direct value as is currently the case with the DTS

Please refer to questions 39 to 44

8. Appendix

ElectraLink's delivery credentials

ElectraLink is ideally placed to deliver Flexr. The following ElectraLink assets and capabilities are tangible and demonstrable in the delivery of collective services for the DNOs and their customers:

We are positioned at the heart of the energy industry. We have over 20 years of experience in delivering the Data Transfer Service (DTS), providing data insights and managing the governance of industry codes. We will build on our wealth of experience to develop new industry-critical services with relatively low risk.

We are directly controlled by the DNOs through its corporate governance structure. This will enable us to reach decisions and build new services tailored to the DNOs' needs more quickly and efficiently than might otherwise be possible.

We have a proven track record in managing the governance of market algorithms and data access rules e.g. DTSA, DCUSA, SPAA and TRAS.

We are agile and have access to transformational technology. At the same time, we are part of the energy industry and understand the importance of maintaining control and accountability. For example, the public cloud solutions employed by the Energy Market Data Hub can partner with a diverse range of technology providers, such as distributed ledger technology. We act as a conduit to innovation.

We have a history of innovation and foresight with respect to both technology and processes. We had the foresight in 2012 to seek permission to store DTS data, so we are now able to provide valuable insights to the industry, for example detecting LV network-connected electric vehicles and low carbon technologies, and validating flexibility transactions. We were also the first industry company to procure a public cloud solution for our data services, which will enable us to manage increased data flows and provide more in-depth insight, as well as new services.

We are already supporting DNOs through the energy transition with innovation projects, which deliver value from our data and experience.

Finally, we are working with the industry to deliver the future of code governance, including updating DCUSA to support behind the meter asset registers.

ElectraLink – a brief history

For over 20 years, ElectraLink has supported the evolution of the UK energy market with consistent and reliable delivery of the Data Transfer Service (DTS). From its inception in 1998, the DTS has underpinned competition and growth in the market through flexible, secure and trusted data transfer solutions.

In 2012, ElectraLink was granted permission from industry to access the data that is transferred across the DTS. With appropriate governance in place, we are able to make use of this unique asset to monitor and identify trends in the energy market, providing a level of transparency and insight into the challenges and opportunities faced by the industry. This allows ElectraLink to democratise access to energy data, deliver solutions, facilitate innovation and reduce costs to consumers.

Over the past year ElectraLink has managed the successful transfer of 268 industry flow types amounting to almost 2000GB of data. This has enabled the operation of 258 connected parties who rely on our service level agreement of 99.9% availability - all on the DTS system which costs the energy market £7.5m a year.

The data integration services provided by ElectraLink have enabled significant innovation within the retail market, which was unforeseen at the time of inception. This includes data-driven value to service providers who offer market participation solutions, low cost retailers targeting specific customer groups and third parties, such as third-party intermediaries, price comparison websites and auto switchers. The latter are analogous to the aggregators and providers of flexibility looking to drive market change in networks today.