**ENERGY**

**SYSTEM**

**DATA**

**TASKFORCE**

**RESPONSE TO THE OFGEM “WHOLE SYSTEM” LICENCE CONSULTATION**

This response to your “Consultation on licence conditions and Guidance for network operators to support an efficient, coordinated, and economical Whole System”, dated 17 December 2018, is made on behalf of the Energy Data Taskforce. The response is not confidential.

The Energy Data Taskforce was set up by BEIS and Ofgem to inform them of the opportunities offered by greater use and release of data and provide them with a clear pathway of how to harness these opportunities. The final report of the Taskforce is expected in May so this response is based on our work to date. We are confident that the key messages which we convey here will be central to the Taskforce’s final advice to BEIS and Ofgem.

Given the role and responsibilities of the Taskforce, we only comment on the proposals in your consultation in relation to energy data and rather than address the consultation questions in turn, we think it will be more helpful to present the opportunity that we see to benefit future energy consumers and our advice on how you could proceed to seize that opportunity.

We would like to stress that our approach to data is guided by examining the whole system benefits and we will be making recommendations that reveal opportunities beyond the existing “functional” silos that exist in the sector today, as they will erode throughout the transition to a decarbonised energy system.

We welcome and are grateful for the references to the work of the Energy Data Taskforce and are keen to work with you as we complete our advice to Government and yourselves and as you take decisions following the consultation.

As we have already been developing our recommendations in concert with BEIS and Ofgem we believe that our engagement with Ofgem is already iterative and mutually reinforcing.

With best wishes

**The Energy System Data Taskforce Team**

Laura Sandys and the Energy Systems Catapult

**Overview**

We wholeheartedly endorse Ofgem’s proposal in the consultation to introduce clear obligations on network companies to make more data available to stakeholders, based on their needs, now. This reflects Ofgem commitment to ensuring that the energy system is fit for the future, driving forward on the transition of the system and is continually increasing efficiency and productivity.

Your proposals are a really important opportunity to shape a new “data informed” culture as well as driving compliance, convergence and interoperability in relation to data. As we are all aware improving the quality of data, data sharing opportunities and new business models developed from greater data visibility is a journey and this consultation is a crucial first step in modernising the sector and ensuring that it is future fit.

We believe that greater data transparency, stronger principles around the importance of data for the energy system of the future and the drive for efficiencies and greater productivity can all be supported by license changes, regulatory expectations and regulatory leadership.

**The Opportunity**

In an increasingly decarbonised, digitalised and decentralised energy sector, the dispersed nature of the system, multi-actor interventions, technological innovation and new types of assets will make the current command and control levers that manage the system almost impossible. We believe that data release, data analytics and data flows will release the benefits of this new system, while ensuring that actions, interventions and investments are appropriate, timely and price contested.



**Opportunities specific to Network Management**

The profusion of new sources of flexibility – one of the drivers of the current consultation – is one pertinent example. Ofgem has been clear that this is a competitive opportunity and that new entrants, new technologies and new business models must face a level playing field – that if they can provide better service at lower cost, for example from tapping multiple revenue streams, they should be able to compete. New entrants inevitably start from a weaker position than incumbents in understanding the complexity of the market, but may bring better understanding of future consumer behaviour, more trusted brands, cross-sector synergies or superior technology. To invest in capital intensive assets, they need a fair opportunity to find the best locations to connect at the outset and to be able to make informed judgements about how network constraints, for example, will develop over time. Better provision of data from network companies could provide a key foundation stone.

From the network company perspective, we understand that existing data quality and the extent of digitisation is variable. Some companies have tried different approaches to meet requests from stakeholders. Some of the standard models (such as Long Term Development Statements) are plainly less useful than they could be. We hear frustration from within the network companies that they aren’t doing more – a sense that they could and want to contribute more, but lack a mandate. On some issues there appears to be good collaboration between network companies; on matters related to price controls there is more competitive tension between them. We feel Ofgem can cut through this impasse by making clear that the data is part of infrastructure that has been paid for already by consumers, that the extent of collaboration on data release should be driven by the needs of data users, and that efficiency demands making the most effective use of the data that exists now, alongside efforts to improve quality over time and not waiting for some mythical benchmark of good quality to be achieved.

This would see all regulated network companies registering all their network and system data on an Energy Data Index available publicly. Network asset data would be published by each company in a consistent form, with appropriate caveats if the accuracy is known to be limited. This could start with raw data and be extended over time (each company moving as quickly as it is able) to include more accessible tools such as interactive maps with information about ability to connect for example. Subject to data privacy, system data would be provided alongside to show the capability of assets connected (directly or indirectly) to the network and historic information on flows. Network companies would comply with the mapping standards and over time develop digital twins of their network. These would be coherent and compatible between the regulated energy networks (electricity, gas and, if legislated, heat networks) and designed to integrate with the key elements that are necessary for stakeholders to consider efficient energy network developments for example local authorities wanting to consider their mobility and waste plans.

The level of assessment around investment needs to be much better informed by transparent and symmetrical data and analytics that are robust and complete. Separate consideration would be needed as to whether additional investment in network sensors for example would be justified or proportionate or needed. Architypes with sophisticated analytics can be developed to model investment needs from the basis of selected and representative data sets. This more sophisticated use of predictive data analytics is new to some in the sector and skills need to improve to meet the new requirements of a modern energy system and for it to deliver “evidenced” data.

We also see that combining energy system data with other government and third party data sets from beyond the energy sector will deliver some very exciting insights that should further inform how best to design and develop our new transitioning energy system.

**Scope and Ambition**

While we are very aware that improving data release, quality and analytics is a journey, we would recommend that your proposals increase their scope and ambition, articulating that expectations will increase over time and through experience. In addition the sector today has very varied approaches to data release and smart utilisation of analytics, and it is important that any changes in the license drives the all participants to the best in class today – and then increase expectations from that starting point.

As written, the recommendations in the consultation could unduly restrict the role that network companies are being asked to play, and we believe that the networks, as the “spine” of the system, needs to see its role as a facilitator of all other parts of the energy system. The data needed to “facilitate” therefore goes beyond the distinct boundaries of distribution.

The approach proposed by the Energy Data Taskforce is founded upon five key principles for the energy sector today and in the future. As the regulator is moving towards principles based regulation we believe that these could be adopted as part of the license review.

* **Data is an integral part of Infrastructure:** wherever possible, all assets should be accompanied by the relevant data, particularly for new investment (recognising there may be some legacy issues). There are already some DNOs who have excellent mapping tools, some who have flexibility platforms that is based on infrastructure data, and others who have limited visibility of their assets. While the ambition needs to exceed current visibility and access to data, this license change should expect networks to reach best in class over a specified period of time with a further stretch by the time of RIIO2.
* **Presumed Open:** the Energy Data Taskforce proposes that data is presumed open unless good cause to restrict, license or inhibit access can be evidenced. While there are data sets that might need to be restricted it is the data holder that needs to make that case. This is a change in culture and places the “opening” of data as the default and if reasoned requests for information are made, the data should be provided unless specific criteria to withhold are met, in which case reasons must be given to the applicant and alternatives proposed.
* **Discoverable, Searchable and Understandable**: A description of all data sets held should be disclosed through a Data Index whatever openness/restrictions apply. The Data Index will shine a light on what could be available and enable stakeholders to consider the data useful or not, rather than the data owner and will transform the discoverability of sector data. The taskforce will be proposing core MetaData standards that will ensure that the index becomes easily searchable and understandable – a functioning tool for all. In addition the Taskforce will be proposing a “home” and curation function for the Index.
* **Common Standards and interoperability:** while GB has a relatively small number of energy network companies by international standards, there is still a propensity for someone asking for data from six companies to receive seven different types of answer. This is simply inefficient. We understand that network companies have their own legacy data systems and make no proposals or assumptions about any changes to them, which will be a matter for the companies to consider in terms of their own (in)efficiency. However it is essential that they can all feed into a common front end so that third parties only need to learn a single mode of interaction. Over time, thought will be needed to assess where it is possible to harmonise underlying definitions and data collection, but we recognise that may take considerable time to bear full fruit if material costs are to be avoided. Consistent standards can also provide for automatic updating of data as a digital replica. We will also be ensuring that all the standards and approaches reflect the needs of artificial intelligence and machine learning standards.
* **Security safe:** the Taskforce will recommend that security is triaged against key criteria that will be forthcoming in our report. Different levels of openness and security triage will be required and we will take advice from the competent Authorities – BEIS and Ofgem - on what issues need to be considered. In principle we will be looking to adopt the best in class standards that combine openness and security and will be drawing on Estonia as the most open while more security conscious energy system.

**What does Ofgem need to do to achieve this?**

The draft licence conditions and guidance in Ofgem’s consultation are not that far away from what would be needed to grasp this opportunity to help transform the sector.

One key component should be added – that of core principles as outlined above. There are two key elements within the consultation that we believe need to be amended - scope and the data obligation. There are then a few clarifications we propose around the guidance.

**Scope**.

* We see no reason why the proposed licence amendments would apply only to electricity network licensees and not also to gas network licensees.
* The definition of the term “Whole System” proposed in the licence condition – while used more in the context of efficiency than data - is unhelpful even in the data context. It is essential that the sector thinks of the whole system as encompassing not just networks but all associated assets and behaviours and across energy vectors. It would be more helpful to define Whole System by refence to the system that affects the interests of future energy consumers. If Ofgem is intent on limiting the efficiency consideration to electricity networks, it would be better to use the term “Whole electricity network” or something similar. From a data perspective, it is essential that the data under consideration is not limited to data about the assets constituting the electricity networks alone – which would say nothing about its use and hence congestion and flexibility opportunities, for example. This could be clarified and checked for consistency in the guidance.

**Data Obligations**

* In the draft licence condition, the **data obligation** is for each network licensee to share “such information as it considers useful” following engagement with stakeholders. We would urge that this obligation is “reversed” and would be better framed from the principle of openness rather than selected release, not least because ultimately it needs to be enforceable (more detailed analysis – see annex). We propose an explicit obligation to list all network and system data on the Data Index, and for network licensees to be obliged to provide such information as stakeholders request unless it falls foul of specific restrictions (privacy, security, customer commercial sensitivity or adverse consumer impact). Where the request is denied, reasons should be given (and published) and the network company be required to suggest what alternative (eg aggregated/appropriately redacted) version of the information could be made available.
* Further, network companies should be obliged to consider **reasoned requests** to amend the data that they collect and consider the costs and benefits of doing so. There would be no penalty on the network company for turning down data requests, but third parties could compare and report on their relative responsiveness and ultimately Ofgem would have an enforceable licence condition if needed. In our view, shining a light on the relative openness of all the network companies could help change the sector’s culture regarding data.

**The Guidance**

* We recognise Ofgem’s view that **Guidance** is needed to sit alongside the licence condition and can see this may be helpful initially. However we caution that the digitalisation agenda and the energy sector are moving at pace and even the most perfect guidance produced today may look dated and more importantly act as a drag within a few years. One option would be to apply a sunset clause to the guidance (eg only applies for two years, beyond which time the sector will either have moved sufficiently for the licence condition to stand alone or there will at least be an explicit prompt for Ofgem to review the guidance.)
* Parts of the guidance are very helpful to the data agenda, such as the push for increasing completeness of data over time. Perhaps by the nature of such a long document, there is a risk that parts can be read unhelpfully. For example, the words “data” and “information” are used in ways where it is not clear if they are intended to be interchangeable which would not be helpful or that data provision is not important if information is provided which, in some interpretations could be worse. We note that several stakeholders have complained to the Taskforce that network companies provide reports and descriptions rather than raw data, which does not allow them the insight they need for their decision making.
* The examples given in the Guidance of providing information lack ambition. They have more flavour of published reports and making data available than interactive maps which some companies are already offering, inhibiting the move towards digital twins which is clearly where Government policy, the Centre for Digital Built Britain and the National Infrastructure Commission among others are pointing. We recognise that this is a difficult area in that what is ambitious today may look dated next year. Nonetheless, that is more reason to start with ambition.
* The guidance could point to providing both raw data in machine readable format and tools that enable more effective use of the information, such as interactive maps.
* We welcome the broad definition of stakeholders.  For avoidance of doubt, the guidance could usefully clarify that this includes academics and think tanks among those who can support better outcomes.
* The guidance could refer to the findings of the EDTF that will cover some of the key areas of the guidance that you aim to cover. Our recommendations will adopt best practise approaches to the following:
* **Openness:** The definition of open data is broad and includes “open”, “public”, “shared”, and “closed” and we will be proposing an appropriate triage process.
* **Metadata standards:** ensuring constituency in relation to discoverability
* **Interoperability standards and data structures:** utilising approaches that are standard in other sectors and can inter-relate with other Government infrastructure projects
* **AI and Machine Readable:** our recommendations will all ensure that the data sets are future fit for new technologies and do not face redundancy in light of new approaches to energy system management.
* **Security Considerations:** We will be proposing some key security issues that need to be addressed

**Next steps**

We are very keen that Ofgem moves, within the coming months, to introduce licence conditions along the lines discussed above to clarify the obligations on network licensees to provide data.

Acting now is entirely appropriate in ensuring the network companies play their part in the energy transition as part of the RIIO deal. It does not preclude further steps on data, which could include reputational measures or even financial incentives, being introduced through RIIO-2, but would provide at least some early experience to inform that judgement.

We recognise that some of the approaches we have outlined in this response need further development and that reflects the fact that the Taskforce is only part way through its short life. The concepts will be further developed in time for our final report in May and we therefore suggest that close interaction between Ofgem and the Taskforce staff will be beneficial as we each finalise our next documents.

We very much welcome the opportunity to input into this important license change and commend Ofgem for being an important driver of change to ensure that data release and greater asset visibility is regarded as an important part of the energy system transition.

**ANNEX**

The operational requirement on data provision is for each network licensee to make available “***such information as it considers useful***…” (emphasis added). This requirement is caveated by proportionality and legality, and guided but not limited by three purposes which include “making efficient…decisions” (without being clear whose decisions) and “competition in generation and supply”.

Among the issues this formulation gives rise to include:

* each licensee may have its own view of what is useful, and this may differ from other licensees (over-riding the standardisation principle);
* the licensee has considerable discretion and the drafting may make it almost impossible for Ofgem to enforce even basic data provision. Ofgem would need to prove that the licensee considered the information useful, not just that the information is useful;
* there is no objective benchmark or test of usefulness exacerbating the concerns above;
* while the guidance on comprehensiveness is useful, the proposed licence draft places the burden of proof on Ofgem/applicants. An alternative could be to require licensees to justify not levelling up to the best information provision already achieved by another licensee. Initially, this could push distribution licensees to provide as much information as is there in transmission, helping to level the playing field between distribution connected generation and demand side response with transmission connected parties.

While caveats on proportionality and legality are appropriate, they are worded cautiously which may exacerbate a generally cautious approach being taken by the industry. For example, in the bullet point list in the guidance, the first few bullets all seem to be requirements to comply with the law. The reference to security is clearly valid but could be read as not doing anything that has any risk, however slight and/or outweighed by benefits. And the final bullet point is so vague as to allow wide discretion.