



The Network Innovation Review: Consultation Response

Summary

The Electricity Storage Network (ESN), as the UK industry group dedicated to electricity storage, welcomes Ofgem's consultation proposals arising from the Network Innovation Review. We believe innovation projects are very important for trialling new approaches and pre-commercial technologies, and have observed this directly with projects on electricity storage.

We welcome the continuation of innovation funding for the network companies. We support the requirement for a more strategic approach, notably the development by the network companies of an overall innovation strategy. We support the call for innovation ideas from third parties to inform individual network company strategies. We support a requirement to account for next steps post completion of innovation projects.

We believe there is still more to be done in term of the tiers of governance for innovation. In particular:

- Ofgem-run awards for innovation funding should be themed according to priorities drawn from the network companies' innovation strategy. These themes should themselves be consulted upon by Ofgem.
- The transformation by the networks to more dynamic DSO activity (in the case of DNOs) may require change that does not necessarily qualify for innovation funding *per se*, but for market facilitation. This transformation should be considered alongside any "innovation" strategy.
- Although a large amount of innovation in the energy industry is down to the networks, there is a wider innovation piece that is for Government to develop,¹ demonstrating how Government policies and funding create the framework within which network company innovation can fulfil its potential.

We look forward to developing these ideas further in collaboration with the industry.

Introduction

¹ An obvious place for this would be in the [Industrial Strategy](#) consulted upon on 23rd January 2017.

The ESN was established in 2008 as the UK industry group dedicated to electricity storage. It represents a broad range of members including electricity storage manufacturers and suppliers, developers of projects, users, electricity network operators, consultants, academic institutions, and research organisations. We strongly support UK companies to deliver solutions for the GB and SEM electricity systems and beyond.

The ESN works on behalf of its members to respond to and address issues affecting the development and utilisation of electricity storage within the UK power system. We have watched closely the progress of innovation projects relating to electricity storage. We have also sat on the Smart Grids Forum and Workstream 6, working to identify the opportunities and barriers to the wider deployment of storage as a tool in a flexible energy system. Overall our observation has been that there is a lot of good activity underway, but that there seems to be no overall strategy, little explicit prioritisation, and few milestones for innovation and more widely for industry-wide transformation of the networks to more dynamic network operators. We therefore welcome the proposal from the Network Innovation Review for a more strategic approach to innovation.

This response represents the views of the ESN as informed by our members and by our mission to promote the wider cause of electricity storage. It should not be taken as representing the specific views of individual member organisations.

The brief response focuses on the issue of strategy (mostly chapter 3 of the consultation) rather than the more detailed issues of how the rounds of innovation funding are run.

Individual Network Company Innovation Strategies

We support the maintenance of individual network company innovation strategies. The network companies are not identical either in the state or the geography of their networks.² They will need to develop solutions according to their individual needs. Even where solutions among networks are similar, some will have a more pressing need for trialling specific solutions than others.

The individual innovation strategies should prove useful in highlighting these potential differences in need, thus informing the industry-wide innovation strategy.

Industry-Wide Innovation Strategy

We welcome the proposal for an industry-wide innovation strategy developed collaboratively by the networks. This should assist not only coordination, but also development of common standards and processes. We welcome the table setting out aims, approach, and output. This could go further, however. In particular:

- Goal: What is the end-goal of the industry innovation strategy? To what timescale?³ Who will set this?

² It is worth noting for example that Scottish DNOs do not even own 132kV networks, therefore most innovation in this space would seem irrelevant to them.

³ For example, end of the T1 period or the ED1 period or beyond?

- **Use:** The strategy should be drawn on by Ofgem for identifying themes for innovation funding rounds. These themes should themselves be consulted on by Ofgem. Without this link, the strategy risks becoming an academic document.
- **Scope:** The transformation by the networks to more dynamic DSO activity (in the case of DNOs) may require change that does not necessarily qualify for innovation funding per se, but for market facilitation. This transformation should be considered alongside any “innovation” strategy. See Appendix A for an excerpt from our submission to the BEIS Ofgem Call for Evidence on a Smart, Flexible Energy System, in which we set out in more detail the related issues.
- **Framework:** Although a large amount of innovation in the energy industry is down to the networks, there is a wider innovation piece that is for Government to develop,⁴ in consultation with Ofgem and the industry. This would demonstrate how Government policies and funding create the framework within which network company innovation can fulfil its potential. We note recent announcements of some £50M for energy innovation, which is less than but on a comparable scale to network innovation funding.

Third Party Involvement

We support the call for innovation ideas from third parties to inform individual network company strategies, and we also support consultation on the industry-wide strategy.

We have no informed view on whether third parties should be able to lead innovation projects. However, we would observe that there will be difficulties of commercial confidentiality if organisations contributing to a publicly available innovation strategy are placed in a position of competing for the innovation funding available from this strategy. Paradoxically, the airing of useful ideas may be impeded by this approach.

Future Funding Level of Electricity NIC

We welcome the continuation of innovation funding for the network companies. We are unconvinced that a smaller pot will increase competition and the quality of bids. The pertinent question is why the full pot was not utilised, and it may well be that one aspect of this is the risk of failed bids – a risk that would be increased further by reducing the size of the pot.

We do however support ongoing rigorous auditing of the value of projects. As part of this, we support a requirement to account for next steps post completion of projects in receipt of innovation funding.

Next Steps

We welcomed the clear structure of this Ofgem consultation, detailing actions and timetables. We would be pleased to see the final timetable for network company innovation, and for this to be set out in the context of Government’s Plan for “Smart and Flexible Energy Systems” and its Industrial Strategy, both due later in 2017.

⁴ An obvious place for this would be in the [Industrial Strategy](#) consulted upon on 23rd January 2017.

Appendix A

For convenience, copied in below are two of the most relevant sections from [ESN's submission](#) to the BEIS/Ofgem Call for Evidence on a Smart, Flexible Energy System. We believe these may be helpful considerations for the development of an industry-wide strategy for innovation, albeit they go beyond the specific questions posed in the current consultation.

Development of the DSO

The ESN supports the development of DSOs, defined in the first instance as active distribution network companies that procure services as necessary to ensure economic and efficient management of their networks. Though there are further definitions and roles, we believe this forms the basis of the concept. As such, the DSO should materialise as DNOs identify opportunities to manage their networks more effectively through the use of external service providers. Conversely, if there is insufficient incentive for management efficiency, or if external service providers are lacking, the DSO will be slow to appear.

→ Emergence of the DSO is dependent on a) sufficiently strong incentives for effective network management and b) sufficiently strong, barrier-free markets of service providers such as storage.

In this context, we would support consideration of an additional regulatory uplift mechanism where DNOs can employ DSO-style measures at comparable cost to conventional solutions.

We welcome the options in the Call for Evidence on further DSO functions in the context of whole-system operation (Figure 2 on DSO models). It is hard to predict how the models would play out but, depending on how they are developed, it is worth considering whether they would tend towards use of more centralised or more decentralised forms of power and service provision. For example, which of the models would militate in favour of large-scale pumped hydro plant as opposed to smaller battery installations?

→ We support further development of the DSO models and exploration of their implications for the look of the wider energy system.

In general, we would observe that there could be greater clarity on the levels of governance in the development of the DSO itself, and on the balance between diversity and consistency in DSO development. For example:

- *Could one DSO opt to be more pro-active in system management while another leaves more to the SO?*
- *Would Scottish DSO functionality at 33kV look the same as English / Welsh DSO functionality at 132kV?*
- *Could one DSO choose to use different business assumptions for service procurement to another?*
- *Could one DSO introduce a wholly different network and services charging methodology to another?*

There are inevitably valid reasons for diversity – including geography, existing network requirements, and business approach to risk – and the level of allowable diversity should be made explicit. Service providers will of course want as much consistency as possible for ease of participation, but not at the expense of progress.

→ There could usefully be greater clarity on the balance of diversity and consistency among emerging DSOs, and the governance to monitor this.

We believe being more explicit on this issue will allow DNOs to proceed with the transformation with more confidence. Indeed, with a clearer direction of travel, the wider regulations and incentives governing markets should more easily align. For example, removal of the commercial barriers to decentralised service providers will more likely align with network charging reform that acknowledges the contribution these providers make

Innovation

ESN has very much welcomed the innovation undertaken by DNOs under the LCNF initiative, notably UKPN's SNS project, and we also welcome initiatives under the Network Innovation Competition (NIC). The DNOs have achieved notable results and publicised these well.

We welcome the review of LCNF. We believe a wider strategy to prioritise innovations has been missing, however. This might address questions such as:

- *What is the critical path in innovations to explore and deliver full DSO functionality?*
- *How much innovation funding is needed for DSO transformation, compared with existing drivers for efficiency under the RIIO price controls?*
- *What is the wider applicability of an innovation project (e.g: how does an English/Welsh project inform Scottish DSO development)?*

It is not always clear to a non-DNO party why activity is a funded "innovation project" rather than an "innovative approach" to day-to-day business. For example, we very much welcome the joint DNO/TSO work on TDI (Transmission/Distribution Innovation) under the auspices of ENA, and we welcome the funded innovation project TDI 2.0, but we are not sure how the two link, and whether the TDI work will spawn other similar projects, and if so, where these will be located and to what timescales.

→ There is a need for an innovation strategy indicating a critical path to full DSO delivery.

ESN also welcomes the £50M from BEIS for innovation support. As with network innovations, we believe a wider strategy, and forward direction for the wider energy system (see below), would facilitate more efficient and targeted expenditure for innovation projects to "plug the gaps." As an example, there has been Government support for technologies at Technology Readiness Level TRL5/6, but there seems to be no support for the next phase, TRL6/7 and project commercialisation. We call for further clarity on the strategic allocation of innovation funding to help bring beneficial storage to market.

The commercialisation of storage is very dependent on the energy supply conditions of each country's specific environment. The technical development of components is being driven globally but the commercial feasibility has to be demonstrated locally. The LCNF experience has been very informative and participation in Innovate UK projects has given some battery businesses a significant platform of experience that has not been obtained in other European countries. The support for single project deployment has clearly accelerated activity in the UK compared with other parts of the world. Such innovation support is arguably more useful than wider subsidy or tariff support, which can be detrimental to long term business planning when support levels fluctuate unpredictably.

Interaction between Heat and Electricity

We note that while this is a Call for Evidence that encompasses “Smart Energy”, there is little mention of heat. We understand the need to bound the problem, and we are pleased at the headway that is being made on removing the barriers to electricity storage, which should unlock a critical source of flexibility on our energy system.

In the longer term, there is a need for a more comprehensive strategy that addresses the links between heat (storage) and electricity (storage).

→ *There is a need for a thorough assessment of the interface between electricity, particularly electricity storage, and heat.*

The Call for Evidence also flags the potential to fund inter-seasonal storage innovation projects. As set out previously, it would first be useful to understand if inter-seasonal storage is needed in a country with plenty of wind generation in winter and sunshine in summer, or whether the required storage periods are more of the order of hours and days. Assessments of the role of pumped hydro plant may feature in this analysis.

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