

FAO: Akshay Kaul
By Email: riio2@ofgem.gov.uk

Dear Akshay,

Thank you for providing us with the opportunity to give feedback on the proposed RIIO-2 framework.

Smart Wires is the leader in grid optimisation solutions that leverage its patented modular power flow control technology. Our vision is to create dynamic power grids that are clean, reliable, affordable and safe. We partner with network companies across the world to address the rapidly evolving challenges of today and tomorrow by transforming the way that power grids are planned and operated. Our customers in the UK have already recognised the positive impact that our solutions can have on their electricity grid. By optimising their existing network, these companies deliver value to consumers. At present, we are helping a UK network company better integrate renewable energy sources by leveraging under-utilised circuits to improve transfer capabilities of the system.

Across the world, we find that network companies often do not have strong innovation cultures due to resistance to change, risk-aversion, lack of incentives, and an inherent preference towards traditional solutions. Furthermore, they are often not incentivised to invest in innovation, preferring to invest in traditional infrastructure solutions which are perceived to be less risky. When incentivised to invest in innovation there is often a disconnect between innovation and Business as Usual (BAU), with limited learnings from innovation incentives being driven into BAU. As a result, many of these network companies struggle to transition innovative solutions from the innovation group to BAU projects. However, this is not the case in the UK due to Ofgem's regulatory framework. We see Ofgem as a leading energy regulator that has transformed the way network companies plan, develop and manage their grids while keeping consumers at the heart of investment decisions. The incentive-based RIIO framework has played a huge role in creating a regulatory environment that benefits all stakeholders. The emphasis placed on driving innovation and efficiency to deliver real value to consumers has helped UK network companies lead the way towards the low carbon, decentralised, flexible and dynamic grid of the future. Considering Ofgem's plans for RIIO-2, we support Ofgem's commitment to continue building innovation and efficiency into the cultures of network companies. We believe that the best of the incentives that streamline the transition of projects from innovation into BAU should be applied to all parties in order to maximise the value delivered to UK consumers. We advocate the roll-out of similar mechanisms across the world to incentivise network companies to make smarter investments that prepare their grid for the uncertain future.

In our response we comment on the aspects of RIIO-1 that we propose be retained in RIIO-2 and we address the consultation questions where we felt we could provide insightful information. Our response is focused on RIIO for electricity network companies.

Strategic Approach to RIIO – ED2 (Questions 2 – 5)

We believe moving to a safe, reliable and efficient low carbon network should be at the heart of what all network companies are working towards. The companies should be obligated to facilitate projects that support decarbonisation and incentivised to deliver these in a timely, economic and environmental sustainable way.

We recognise the unique challenges posed by the move towards a low carbon future. There is a high level uncertainty in the timing of different technology, such as electric vehicles, being adopted by the market.

In considering a strategic approach to providing additional capacity it should be recognised that many networks are operating at relatively low utilisation (i.e whilst a circuit may be overloaded, there is often spare capacity on other surrounding circuits) and network owners should be encouraged to consider how to effectively leverage this existing capacity. Further to this, the provision of additional capacity, over and above the underutilised network, should be increased in a series of incremental investments rather than one major investment. This would allow projects to adapt to changes in network need in an agile way, whilst reducing the environmental impact, long lead times and risk of stranding associated with large investments.

Networks should use solutions that allow significant investment decisions to be deferred in areas, until there is greater certainty. For example, placing increased value on solutions that offer long term flexibility and respond quickly to changing needs. Networks should be encouraged to make investment in temporary solutions, that can quickly deliver increased capacity, whilst not prejudging future requirements, these can be further enhanced if these temporary solutions can be designed to be relocatable.

However, we recognise that the RIIO framework does seek to encourage network companies to increase their adoption of new technology. We have highlighted the success of the RIIO framework in several different countries, and refinement of this we expect will result in the continued success and evolution of the GB energy network.

How to Set price Controls for DSO Functions (Questions 6 – 8)

We believe strategic investment should be used with a degree of caution. There is a recognised difficulty with anticipating the exact location of increased renewable output, or increased peak demand due to transport and heating electrification. Incorrect forecasting of the locations where these trends will occur risks investments resulting in stranded assets whilst other areas are constrained due to lack of investment. Therefore, we feel that network owners should be encouraged to take forward strategic investment via the development and implementation of new technology. This technology enables incremental capacity to be realised in a short lead time prior to major investment in new network capacity. Incentivising networks to find ways of delaying investment decisions, should result in lower initial spend and a lower environmental impact. The framework should place an increased emphasis on flexible solutions that delay key decisions and also value solutions when the investment can be reutilised once the need in the area has been addressed.

How to set Price controls that drive innovation and competition (Question 12)

We recognise the value Ofgem has driven through the innovation mechanisms developed as part of RIIO-1. We reflect that these have been very successful in placing a new focus on how innovation can be used to address the challenges faced by the energy networks.

We believe within the innovation scheme there should be a renewed focus on how innovation projects transition from innovation to BAU activity. When innovation projects successfully deliver benefit,

there is not always an immediate plan to learn how this can be implemented into BAU, either by the network leading the innovation project or by other network companies. A metric focusing on how innovation projects assessed as being 'successful' are transitioned into BAU may help focus this.

How to set price controls for a Smart, Flexible Energy System (question 13 – 14)

There is a need to develop smart, flexible energy systems to facilitate the decarbonisation agenda, recognising there is significant uncertainty about future requirements. A clear indication of a network's success is the connection time for new customers (demand or generation) and the associated operating costs. Given the nature and uncertainty of these connections it's not possible to accurately forecast requirements, any price review set on a single set of assumptions will lead to either windfall losses or gains and potential delays to future connections. It is our belief that to manage this level of uncertainty a number of targeted Unit Cost Allowances (UCA) should be used to incentivise the development of connections. The targeted UCAs should be designed to target outputs to facilitate the development of a network that meets the user needs, whilst still managing total cost.

Maintaining a safe Reliable Network (questions 24 – 27)

We recognise and support Ofgem and the network's commitment to a safe and reliable network as the energy system transitions rapidly into facilitating a low carbon future. As reflected within the consultation, technology that is not currently available will be able to support this transition in the near future, frameworks should be built with this consideration, allowing for the additional benefit such new solutions may deliver to be captured.

In future, existing temporary solutions, such as mobile assets, need to be understood and assessed to allow network owners to invest in such technology. These solutions can reduce the impact of outages, and allow quick responses to emerging situations, such as extreme weather events. When learning how to manage these situations, consideration should be taken for learning from countries where these type of weather events are already common, with learning and technology from these regions applied to the UK network. Incentive arrangements should be set up in such a way to facilitate this.

Further to this, the aging infrastructure within the distribution networks is expected to increase the number and complexity of outages required to facilitate the continued efficient use of some of these older assets. The use of mobile and temporary solutions, could allow an increased number of outages to occur simultaneously without impacting customers. The options and technology available in this area needs to be fully embedded into the outage planning process to gain the maximum value.

Delivering an environmental sustainable network (Questions 28 – 30)

There can be a contradiction in the network reducing their carbon footprint whilst simultaneously increasing the volume of renewable generation connected to their network. Many low carbon generation connections within the same area can require a network to invest in increased capacity to transport the excess power away from the region. This increased capacity traditionally takes the approach of new assets. Assets often combine concrete, oil and SF₆ all of which have a significant impact on the environmental sustainability of a local network to meet a national target.

When network operators are looking at potential investment decisions they must consider the impact of the whole solution, beyond the cost but also the carbon impact of the network investment compared with the benefit achieved from connecting low carbon technology at the location. Therefore, where possible, networks should look for solutions which reduce this impact, for example low concrete solutions, using lessons learnt from innovation projects to improve the sustainability of the investments made, whilst still facilitating net zero by 2050. Consideration should be given to developing mechanisms around how the networks have reduced the carbon in their reinforcement works over the lifetime of RIIO ED2.

There is further benefit that can be achieved through the use of interim solutions whilst long term investment criteria are understood. There is a large uncertainty in the volume of low carbon generation to be connected at specific points and the speed and volume of uptake of decarbonised transportation. These factors will have a significant impact on the network reinforcement required. Interim, temporary solutions, such as assets that can be moved easily after a couple of years can allow longer term investment decisions to be delayed until the requirement and certainty of it is understood. The flexibility of such solutions will reduce the risk of stranded assets, resulting in potentially a large construction project with all the associated environmental impact being wasted. When there are schemes that are at risk of such a trajectory, these should be highlighted early by the network companies and interim solutions applied to mitigate against this.

Enabling Whole System solutions (Questions 31-32)

We support the proposal of including whole system solutions within the Business Plan Incentive. We believe that the assessment of the energy and transportation networks are becoming increasingly integrated and looking at parts in isolation risk increasing investment and consumer costs unnecessarily. We reflect that it is necessary to ensure a robust mechanism to validate that potential solutions have been assessed across the whole system and not just in one aspect. To this end, we support the distribution networks potential participation in the early competition model being facilitated by the ESO through the NOA process. However, we feel there needs to be greater clarity around the potential funding mechanisms available to all parties who may participate through this or the pathfinder process.

Further to this third parties should be encouraged to start developing solutions to the challenges faced to the networks due to the changing energy landscape. In the case of whole system solutions, parties outside the immediate network owners may be able to see a more holistic approach. This approach may be difficult to identify for those working within the organisation. Non-network parties can offer real value and expertise in this area and should be encouraged to start developing proposals that can later be adopted by the network companies. To achieve this there must be transparency in all aspects of the process, from data to the investment decision process to implementation. This information is vital to ensuring others can engage in the assessment of whole system solutions and contribute meaningfully to the end result.

Managing Uncertainty (question 33)

To help manage some of the uncertainty around the transition to a low carbon network we recognise the benefits of establishing a UCA for providing incremental capacity with appropriate incentives for outperformance (we note this as for example encouraged National Grid Transmission to drive innovation into BAU in the utilisation of modular power flow control). There is currently an unknown volume of connections to be achieved at lower voltage, and this uncertainty increases for future years. However, it is known that there are likely to be a high number of connections required, both in terms of demand and generation to facilitate this transition. Therefore, an incentive focused around connection costs could help drive excellence in this area. Combining an obligation to connect new parties with a UCA and an incentive to find the most economical solution, would drive networks to look at new, innovative solutions, whilst still ensuring they are able to help this transition.

Driving efficiency through innovation and competition (questions 38 – 41)

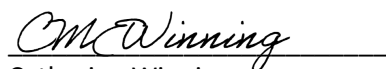
The RIIO-1 framework has been successful in stimulating innovation projects and those projects have already delivered real value to consumers. We admire Ofgem's dedication to embedding a culture of innovation into network companies and we hope to see this continue in RIIO-2. We agree that the NIA should be retained in RIIO-2 as they enable network companies to trial new innovative technologies and business models that may otherwise be too risky for BAU. We further support a review of the NIC process into a new funding pot, particularly a funding pot focused on the optimisation of the whole system solutions.

However, we think that the innovation stimulus should be more focused on moving the projects into BAU. We support the increased focus on transitioning more innovation projects into BAU and building this the business plans. In innovation projects there should be more focus on ensuring a path to BAU, and how this information is the disseminated to other companies, to maximise the potential benefit. This will guarantee more consumers will benefit from the innovative solutions that have already been trialled on the electricity network.

We also support in principle the concept of innovation being supported by non-network parties. However, we believe this must be only done when in close collaboration with a network party to ensure that benefit can be applied to the network in an efficient and timely manner. Where non network parties develop viable innovative solutions, there must be a mechanism to encourage network owners to engage in this innovation and utilise lessons learnt from the innovation funded work. If no such mechanism is implemented there is a risk third party innovation could become lost.

We have enjoyed reviewing this RIIO-2 framework consultation and preparing our response. We now look forward to reading the final framework decision later this year.

Yours sincerely,

A handwritten signature in cursive script, reading 'Catherine Winning', is written over a horizontal line.

Catherine Winning
Customer Solutions Engineer