

6th March 2024

Ofgem: RIIO-3 Sector Specific Methodology Consultation

Contact:

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Summary

Energy Systems Catapult welcomes the opportunity to respond to Ofgem's consultation on the sector specific methodologies for the RIIO-3 price controls of electricity transmission networks, and of gas distribution and transmission networks.

The Catapult was set up to accelerate energy innovation towards Net Zero, and in doing so enable that UK businesses and consumers to capture the opportunities of clean growth. The Catapult is an independent, not-for-profit centre of excellence that bridges the gap between industry, Government, academia, and research. We take a whole systems view of the energy sector, including in policy design and implementation, helping us to identify and address innovation priorities and market barriers, to decarbonise the energy system at the lowest cost.

We'd like to highlight the following key messages:

A whole systems approach to decision-making

RIIO-3 must account for whole energy system perspectives. This means directly accounting for:

- How price control decisions interact with investments that sit outside of the RIIO framework, such as hydrogen and offshore generation, transmission and storage.
- Consistency between investment plans in the onshore electricity and gas networks – there is an expectation that the Centralised Strategic Network Plan would be able to capture some of this at the transmission level, but there needs to be a clear plan for how that then gets translated into price control decisions.
- The interactions (and potential conflict) between planned network infrastructure and energy markets, such as local procurement of flexibility.

A whole system approach to innovation

We agree with Ofgem that few innovation projects have been directly rolled out in network operators' 'business as usual' activities. Moreover, there is a need for innovation that addressed cross-vector issues, rather than being purely focused on electricity or on gas.

To better focus on whole system problems, we propose that the Strategic Innovation Fund is broadened to allow for networks other than those regulated under RIIO-3 to compete for funding. For example, heat networks and future CO₂ networks and transport networks should be allowed to lead projects, where they are able to demonstrate that their innovations could have a positive impact on the electricity and gas networks (e.g. by avoiding the need for reinforcement, enhancing

system resilience, etc.). This would allow for innovation projects that have a consumer benefit and support the UK's transition to Net Zero from other sectors. Such innovations may not be commercially favourable to electricity and gas networks, which is why they are unlikely to be put forward by those networks.

To support the adoption of innovation into 'business as usual', we would advocate that Ofgem and network companies' assessment of innovation projects uses a more extensive framework than technology readiness levels. The Catapult has developed a framework called *Aspects of Integration* that could be used to provide an assessment of innovations or systems from a set of 8 interrelated perspectives (the Aspects): Technology, Operation, People, Information, Infrastructure, Interoperability, Commercial, and Legislation.¹ Innovations could be tested on all aspects before the Beta stage to identify barriers for adoption that need to be removed.

We also support the proposal to introduce a SIF Accelerator. The accelerator would help innovators understand the transformational challenges facing network company, so that they can develop compelling solutions and present them in language that key stakeholders within the network companies understand. With access to the key stakeholders in the network companies across multiple departments and from an early-stage in the process (pre-Discovery), the SIF Accelerator would be able to set out the innovation challenges and bring forward a high-quality innovation pipeline. For early-stage innovators this would need to include a range of commercialisation support that would prepare them to be fit for network 'business as usual' procurement and operational implementation. It would also be well placed to bring together consortium or partners to address whole system solutions.

Data & digitalisation

We support Ofgem's ambitions to improve regulatory reporting and to pursue more efficient data gathering approaches. This is an important step for Ofgem's ability to perform its role with more granular and targeted oversight. At the same time, we think some of the data gathered and produced during the price control process can be of value to improving transparency – subject to the need to protect commercially and security sensitive information. Ofgem should consider treating such data as "presumed open", allowing it to be triaged, aggregated or anonymised and made openly available.

We provide a response to the detailed consultation questions in the annex. We would be happy to further discuss our response with you.

Sincerely,

Ben Shafran

¹ <https://es.catapult.org.uk/tools-and-labs/our-place-net-zero-toolkit/aspects-of-integration/>

Response to detailed consultation questions

Overview questions – future of gas

OVQ6. Should RIIO-3 help to manage future gas network decommissioning costs? If so, do you have views on what these costs could be and what mechanisms should be used, including for anticipatory funding?

The Net Zero energy transition will have significant and complex consequences for the gas network. Whilst these impacts will ramp up in the medium to long-term, RIIO-3 presents an opportunity to set the groundwork for the future. With a decreasing customer base as households and businesses move away from gas, and with those remaining potentially reducing their gas consumption due to energy efficiency measures, the decommissioning of the gas grid needs to be planned to minimise inequality and ensure intergenerational fairness.

There are opportunities for other types of repurposing the gas grid beyond hydrogen and CCUS mentioned in the consultation, which needs further research to explore innovative solutions. Managing the decommissioning or repurposing of the gas network will require regulatory tools beyond the current and historic instruments. The Strategic Innovation Fund should be used to commission innovation projects to research possible solutions. Energy Systems Catapult and the wider Catapult network are well placed to support Ofgem in doing this, and we would welcome the chance to discuss this with Ofgem.

Overview questions – Outputs and Incentives

OVQ23. Do you have any views on our proposed long-term approach to embedding climate resilience, including the principles for embedding climate resilience?

OVQ24. Are there any early learnings we should be aware of/incorporate to make progress on this in RIIO-3 or beyond?

OVQ25. Do you agree with our suggested approach for embedding climate resilience into RIIO3, namely: introducing resilience strategies; developing forward-looking resilience metrics; and introducing climate resilience working groups?

OVQ26. Do you agree with the proposals that we have set out around the resilience metric?

We support the intention to include climate change resilience into the RIIO-3 framework but do not feel the proposal goes far enough. The security of supply and planning standards should be updated to take account of low probability, high impact events and move away from average weather years for making decisions. Both the transmission and distribution networks should be planned and built to support extremes of weather, for example air conditioning load in extreme heat and heating load for extreme cold. Both the size of the peak demand and the duration of the peak should be considered.

The inclusion of climate resilience in security of supply and planning standards will support investment decisions. Traditional cost benefit analysis does not justify additional spend for low probability but high impact events. A clear and transparent approach should be developed that all network owners can use to avoid different interpretations of the principles.

Overview questions – innovation

OVQ47. Do you have any views on our proposal to retain a flexible allowance, providing evidence for why you think that it should, or should not be, retained?

We support the proposal to retain a flexible allowance for innovation projects that network operators can quickly access. A flexible allowance allows for co-creation of ideas between networks and innovators to be quickly tested and either fail fast or realise the benefits of the innovation earlier. Our view is the flexible allowance should enable networks to develop low TRL level ideas that are potentially high risk. They should allow for in-depth feasibility studies and testing of novel hardware within a controlled laboratory environment.

OVQ48. Do you have any views on our proposal to retain a competitive network innovation funding pot, that continues to focus on key challenges facing the energy sector, with phases to de-risk the pot?

We support the proposal to retain a competitive network innovation funding pot. We agree this pot should focus on key challenges facing the energy sector. We agree there is a need to de-risk the pot through different stages in the competition.

We agree, that as with the RIIO-2 Strategic Innovation Fund, the competitive network innovation funding pot should fund ambitious, innovative projects which can help shape the future of the energy networks and accelerate the transition to net zero, at lowest cost to consumers. But there is a compromise between funding risky (truly) innovative projects and the need to ensure value for money for consumer bills. As such, we see value in a discovery phase if the barrier to entry can be reduced. Or discovery projects could be spun-up quickly and throughout the year before the application to a larger and riskier project at alpha stage.

OVQ49. Do you have any views on how the structure of the price control innovation funding could be adapted to better focus on whole systems problems, and ensure strategic alignment with other public sector initiatives?

To better focus on whole system problems, we propose this pot should be broader and allow for other networks related to energy to compete. For example, heat networks, future CO₂ networks, storage operators and transport networks should be allowed to lead projects, where they are able to demonstrate that – if successful – their innovation would have a positive impact on the electricity and gas networks (e.g. by avoiding the need for reinforcement, enhancing system resilience, etc.), thus meriting funding through the SIF. This would allow for innovation projects that have a consumer benefit and support the UK's transition to Net Zero from other sectors. These innovations may not be commercially favourable to electricity and gas networks. This lack of benefit could be a potential reason for electricity and gas networks not taking whole system innovation projects forward into the SIF.

We also recommend that Ofgem or Innovate UK provide more guidance for how the innovation funding could ensure strategic alignment with other public sector initiatives. This could be achieved though:

1. Knowledge transfer between projects
2. The requirement for innovation projects to be supported by other public sector initiatives
3. Hardware funded through a public initiative, for example storage technologies, or building retrofit.
4. The programme of works to be proposed is part funded by a public sector initiative and part funded by the price control funding mechanism. Although there is an inherent risk of projects not starting if one or more of the funding sources is not available.

OVQ50. Do you agree with our proposal to continue with a similar level of innovation funding, and if not, could you provide evidence for why a different amount is required, including consumer research you are aware of into their willingness to pay for network innovation?

We are supportive of a similar level of innovation funding. We would welcome further innovation funding but understand the compromise between risky innovation projects and the need to ensure value for money for consumer bills. We identify the need for more strategic spending, for example using some of the innovation funding for establishing an accelerator.

OVQ51. Do you agree there is a need to expand the scope of innovation funding to be more inclusive of third parties?

We agree with clause 12.33 and have identified the same barriers created by network operators to lead projects. We support of Ofgem's view that there is a need to expand the scope of innovation funding to be more inclusive of third parties. This could enable innovations in areas outside of the network licenses but where there are consumer and decarbonisation benefits. For example, in the deployment of energy storage, multi-vector storage, heat networks and transportation networks.

OVQ52. What are your views on us establishing an accelerator to support early-stage innovators?

This would be a positive step. We see two clear issues with the lack of the more 'transformational innovation' coming through the latest SIF calls – as borne out by the lack of innovative SMEs participating in any of the latest Beta stage projects.

The first is a lack of high-quality proposals at the very early-stage that network operators can get excited by and support. There are a high number of expressions of interest in SIF Discovery stage projects that do not progress as bids, due to network operators either wanting to take much later stage / less risky innovation forward (e.g. those already at high TRLs) or simply not understanding the potential of the innovation and how the network operators can best collaborate with innovators. An accelerator could focus on these issues, bringing stakeholders together much earlier in the process and working through some of the barriers to putting in a compelling Discovery stage bid at the requisite quality for selection.

The second is the limited adoption by network operators of innovations that are successfully proven, either at the Alpha or most likely in the future, the Beta stages. We believe that one of the main reasons for this lack of adoption is the lack of engagement between the SIF project and some of the important stakeholders within the network operators themselves, such as the operational teams or procurement. Many projects are driven by the network operator's innovation teams, without sufficient early-stage input from the more operational/delivery-focused teams within the organisation. We recognise that this is difficult for the network operators; we consider that an accelerator that is set-up to specifically focus on these adoption challenges would result in much more successful adoption of the proven innovation and greater impact for all.

The accelerator would address helping innovators understand the transformational challenges facing network operators such that they can develop compelling solutions and present them in language that key stakeholders within the network operators understand. With access to the key stakeholders in the network operators across multiple departments and from an early-stage in the process (pre-Discovery), the SIF Accelerator would be able to set out the innovation challenges and bring forward a high-quality innovation pipeline. For early-stage innovators this would need to include a range of commercialisation support that would prepare them to be fit for network 'business as usual' procurement and operational implementation. It would also be well placed to bring together consortium or partners to address the whole system solution.

OVQ53. What are your views on our proposal for this to be a smaller part of a future challenge fund and to be sponsored by networks?

The accelerator would simplify the engagement model with innovators, increasing pipeline and quality, and reducing the burden on the limited innovation team resources at the network operators. It would be logical that the networks sponsor this resource.

OVQ57. Do you have any feedback on the view that not enough network innovation funded projects have been rolled out, and can you share any evidence you have to support your position?

We agree with Ofgem that few innovation projects have been directly rolled out in network operators' 'business as usual' activities. However, we view the learning from undertaking innovation projects as benefiting the industry and that these experienced encourage an innovation culture in network operators. Some of the direct benefits provided by the innovation mechanisms in the RII0-1 and RII0-2 price controls include the advancements of active network management / constraint management zones and flexibility products enabling more generation and demand to connect to the networks. Without these projects there would not be as much learning about the impact of electrification of transportation and heat on the electricity networks, which in turn provides essential data for the planning of networks.

In some cases, innovation projects experience a funding gap between early innovation and late state innovation. There are mechanisms for innovation projects to receive funding to develop and prototype ideas, but funding is often lacking in later stages when learning needs to be integrated into the prototype for creating a product or service that can be incorporated into a 'business as usual'. After the prototype has been trialled, there may still be sufficiently high risks that neither the project partners nor the network operators are able to create an investment case. Late-stage funding may enable risks identified during the trial to be mitigated.

To support the adoption of innovation into 'business as usual', we would also advocate innovation projects use a more extensive framework that includes aspects other than technology readiness levels. The Catapult has developed a framework called *Aspects of Integration* that could be used to provide an assessment of innovations or systems from a set of 8 interrelated perspectives (the Aspects): Technology, Operation, People, Information, Infrastructure, Interoperability, Commercial, and Legislation.² Innovations could be tested on all aspects before the Beta stage to identify barriers for adoption that need to be removed.

We also support Ofgem establishing an accelerator (OVQ52) that would better prepare early-stage innovators to be fit for network business as usual procurement. Therefore, increasing the chances of 'business as usual' adoption.

OVQ58. What are your views on the design of potential new mechanisms to address this?

We support the potential new mechanisms suggested by Ofgem to provide incentives, a roll-out allowance, penalties and performance-based incentives. We agree that these new mechanisms should encourage network operators and their innovation partners to adopt innovation into 'business as usual'.

However, there will need to be a balance between incentives and penalties. Introducing these mechanisms could present unintended consequences that reduce the risk-appetite for innovation. These mechanisms may encourage lower risk projects where there is certainty of 'business as usual'

² <https://es.catapult.org.uk/tools-and-labs/our-place-net-zero-toolkit/aspects-of-integration/>

adoption. This could seek to undermine the network innovation mechanism to identify game-changing innovations that accelerate the UK's journey to Net Zero.

Overview questions – data and digitalisation

OVQ59. Do you have any views on the timelines for modernising regulatory reporting?

These timelines seem sensible and approachable for the regulated entities; however, there will be significant challenges in data collection and standardisation to overcome. We would recommend perhaps starting earlier with some work to identify some ways in which data standardisation could be approached.

OVQ60. Do you have any initial views on opportunities for improving efficiency in providing the data that Ofgem receives as part of regulatory instructions and guidance?

We are of the opinion that this is an important step for transparency, in addition to the ability for Ofgem to perform its role with more granular and robust oversight through a critical phase of the Net Zero transition. Consideration should be given to ensuring that data exchanged with Ofgem for these purposes is treated as presumed open and can be triaged, aggregated or anonymised and made openly available.

OVQ61. Are there areas of regulatory reporting that would be most beneficial to start with in the modernising project?

We have no detailed views on this, and would benefit from clarity on what Ofgem thinks is in and outside of the scope of this modernisation.

Electricity Transmission questions – CSNP Coordination

ETQ29. What is the most effective way of ensuring collaboration between the FSO and the TOs, to ensure the delivery of high-level design of CSNP options?

We think there are three aspects to this question: governance, decision-making by Ofgem, and incentives. We briefly discuss each of these in turn:

- Governance: in both developing the CSNP and in tracking delivery against it, there needs to be a clear governance structure – such as a 'delivery board' – that includes the key parties: the NESO, the TOs and Ofgem.
- Ofgem's price control decisions: there is a practical question for Ofgem as to how it would account for projects identified in the CSNP in its allowance-setting process, particularly where timing does not align. ASTI provides a template for a lighter-touch approach to doing so.
- Output delivery incentives: should play a role in how Ofgem holds the TOs and NESO to account for delivering the CSNP projects during RIIO-3.

Gas Distribution questions – Proposed RIIO-GD3 specific outputs & uncertainty mechanisms

GDQ7. What are your views on our proposed approach for managing uncertain costs relating to regional energy strategic planning?

Given the amount of time it will likely take to establish the RESPs, for them to deliver detailed regional plans, and for those plans to be translated into network investment plans, it is reasonable

to assume that RESPs would have a small impact on investments in RIIO-GD3. One option for addressing any residual risks around this would be to guide RESPs to take as given RIIO-3 projects that have been approved by Ofgem. To provide greater confidence of the suitability of GDN plans within the context of the Net Zero transition, we recommend that Ofgem sets the expectations that – where a Local Area Energy Plan (LAEP) is in place, the GDN's RIIO-3 business plan should align to that LAEP.

LAEPs are an integrated planning approach, designed to define detailed place-based whole energy systems pathways and delivery plans for Net Zero. The process identifies priority energy projects for investment across the networks in line with local decarbonisation ambitions³. Where there is local support for investments identified via a LAEP, the network companies should not be constrained in their ability to respond to these investment cases.

Gas Transmission questions – Infrastructure fit for a low-cost transition to net zero

GTQ1. Do you agree with our proposal to include a re-opener to manage the impact of introduction of the CSNP and gas strategic planning processes, with annual windows starting from the first year of the price control?

Traditionally, re-openers and uncertainty mechanisms or price controls have been used to address specific risks, with re-openers used when the impacts of those risks on the network companies were less well defined. The newly introduced strategic planning processes present an entirely different regulatory challenge, particularly in the early years when the plans may evolve in scope, and when the methodology may change in significant ways from year to year. On balance, annual re-opener windows would appear appropriate for reflecting the evolving nature of the sector while providing sufficient predictability to support investment in the networks.

At a minimum, any re-opener or other approach taken should systematically allow for a whole system approach to energy infrastructure planning and investment to ensure risks and opportunities between networks and vectors are appropriately considered. This means accounting for both the impact across gas and electricity transmissions (and the distribution networks, if relevant), but also for other infrastructure that Ofgem regulates outside the RIIO framework, such as hydrogen and CCUS.

As an example, our Future Energy Grid for Wales project⁴ found that decarbonisation choices made even out to 2030 (e.g. early hydrogen production method and business models) would impact the role of the gas network in the medium-term.

Moreover, there is an important role for Ofgem in setting out the expectations for the various strategic energy plans, so that the impact of these plans is easily translatable to the context of the network price controls.

³ <https://es.catapult.org.uk/report/laep-the-time-and-place-is-now/>

⁴ <https://es.catapult.org.uk/case-study/future-energy-grids-for-wales/>