

Response to Ofgem's RIIO-ED1 strategy consultation from the Energy Technologies Institute

Who we are

The ETI is a partnership between global energy and engineering companies and the UK Government bringing together projects and partnerships accelerating the development of affordable, secure and sustainable technologies to help the UK meet its legally binding 2050 climate change targets.

We make targeted commercial investments in nine programme areas across heat, power, transport and the infrastructure that links them.

We have also developed an internationally peer-reviewed model of the UK's national energy system extending across power, heat transport and infrastructure. The [Energy System Modelling Environment \(ESME\)](#) is a policy neutral system-wide optimisation model which takes account of cost, engineering, spatial and temporal factors.

Introduction

We set out below why we believe that a carefully designed and delivered RIIO-ED1 price control will play an important role in facilitating UK decarbonisation.

We also set out our views on particular aspects of Ofgem's proposals for the price control strategy.

The scope of change by 2023

Our work on energy system modelling suggests that there needs to be significant change in the role of electricity distribution by 2023, if the UK is to maintain progress to its broader long term decarbonisation targets.

This could include significant adoption of plug in hybrid electric vehicles, particularly by consumers with off-road parking, and the beginnings of significant change to space heating with wider adoption of heat pumps. Even if mass market impacts may be relatively limited by 2023, there will certainly need to be large scale demonstration activity and it is important that the design of the price control does not create barriers or otherwise disincentivise DNOs from participating in these.

We welcome Ofgem's recognition of the challenges to DNOs over the period to 2023, including the uncertainty about new local generation and low carbon load that may need to be connected to networks.

Demonstration of new technology

Earlier this year David Cameron launched ETI's two-phase Smart Systems and Heat programme. The programme will invest around £100m in the design, development and demonstration of a smart energy system aligned with the needs of UK consumers in the domestic and small commercial-scale sectors.

The outcome of the Smart Systems and Heat programme will inform technologists and policy makers on the social requirements, technology, commercial frameworks and policy design of a smart energy system.

Phase 2 of the programme will involve a significant system-level demonstration involving thousands of real domestic properties. We will look to engage further with Ofgem to understand potential regulatory requirements relating to such a major demonstrator. It is important that the design of the RIIO-ED1 price control does not block significant system level demonstration activities such as this. Given the scope of change in the UK's energy system, major investment in system-level demonstration will be needed before 2023.

We would also be interested in exploring these and related issues with the smart grid forum.

Support for innovation

We note and welcome the proposals to include further support for innovation within the RIIO-ED1 framework through the specific mechanisms of the Network Innovation Competition (NIC) and Network innovation allowance (NIA).

The Innovation Roll-out Mechanism (IRM) also provides a useful tool which could facilitate important investments in wider adoption of innovative approaches, where justified, before 2023. The criteria for this should be carefully drawn and we support the focus on low carbon benefits mentioned in the consultation.

Funding support for innovation activity is important. It is also important to focus on the adoption of innovative approaches and technologies and addressing the cultural barriers that may stand in its way. Ofgem may want to consider building a cultural element into its innovation support mechanisms (e.g. supporting or requiring work to promote adoption of innovative approaches, potentially as part of the criteria for access to funding).

In addition to mechanisms for earmarked innovation funding, it is equally important that support for innovation is carried through the entire architecture of the price control. For example, the design of the price control should not disincentivise DNOs from:

- including new technologies in their ex ante business funding proposals,
- proposing innovative new business models or activities in their business plans
- during the price control period adopting innovative new business models.

Uncertainty mechanisms

We welcome Ofgem's proposed use of uncertainty mechanisms as a means of addressing the very significant uncertainties that will face DNOs over the price control period. We particularly welcome the specific acknowledgement of uncertainty around the volume of low carbon load / connections.

However, the detailed design of the mechanisms will need to be robust to an unprecedented range of uncertainty, which may affect different DNOs very differently.

In finalising the design of uncertainty mechanisms Ofgem will need to carefully balance a range of factors. In particular we would highlight the need to:

- err in favour of positive incentives for both adoption of new technology and a positive approach to connection of new low carbon loads

- allow for adaptation & flexibility in DNOs response to new low carbon load, and ensure that DNOs are not incentivised to block / resist connection of new low carbon load
- avoid disincentivising adoption of new technology.

Cost assessment

We welcome the use of totex approaches to cost assessment and the use of the range of methods mentioned in the consultation. The approach that Ofgem signals that it will use to assess efficient costs in setting its efficiency incentives and the Information Quality Incentive will have an important influence on the 'ex ante' incentive for DNOs to examine and plan for the adoption of new technologies in their ex ante funding requests. This is an important stage in setting the 'culture of expectations' for DNOs and may have just as strong an influence as the 'ex poste' incentives for DNOs to seek out efficiencies.

We therefore encourage Ofgem to consider how its cost assessment approaches can incentivise robust forward looking business planning by DNOs. One possible approach would be to include a filter/stage in the preparation of Ofgem cost assessments specifically focused on examining whether the DNOs have considered new technologies in their cost projections – particularly those which may remove the need for costly capital investment.

The level of uncertainty and the increased length of the price review may give rise to a further specific issue in ex ante cost assessment which relates to DNOs understanding of current network capacity utilisation. We believe that there may be a need to allow for investment in instrumentation and associated equipment to improve DNOs knowledge about current usage of network capacity. This will place DNOs in a better position to identify the most beneficial ways of responding to changing demands being placed on networks over the eight year period of the price control. It will also enable better strategic understanding, planning and option appraisal for the future transformation of electricity networks over the coming decades.

Clarity around treatment of new business models

Given the length of the price control period the landscape around the role of DNOs could develop and change significantly. It may make sense for the business model of DNOs to change significantly from a pure network infrastructure supply model. We would encourage Ofgem to provide greater clarity on the principles they will apply in handling significant new developments of DNO's business models or new revenue streams from the provision of new products that interact with electricity distribution.

One potential example may be future integration and more sophisticated use of energy storage technologies within distribution networks. We are currently working with enterprises in this space and there is clear potential to apply new technologies in ways which benefit consumers. But this may require further concerted attention to remove regulatory barriers and enable the development of new business models to remunerate beneficial applications.

Incentives around broader impact on decarbonisation

We believe that the 2015-23 period will be an extremely important period in adapting the role of DNOs to facilitate the broader decarbonisation of the UK economy. We welcome the broadly balanced approach that Ofgem is proposing, allowing for innovation and flexibility,

and specifically recognising uncertainty around the connection of new low carbon loads. However, we would urge Ofgem to consider how the broader structure of the price control impacts on DNO's incentives "in the round" to take a pro-active and positive approach to their role in enabling broader decarbonisation.

There is a risk that, in seeking to create certainty and carefully design the individual components of the RIIO-ED1 framework, the broader impact on the culture and incentives of DNO's to consider very different and innovative approaches to their business will be lost. Our Smart Systems and Heat programme will be exploring the scope for very different value chains and business models to meet consumer requirements over the decades ahead as we move to a low carbon energy system.

We note, for example, that output measures around environmental impacts are comparatively narrowly focused. Ofgem may wish to consider the scope for other, more broadly drawn, "outcome" measures which focus on broader contribution to decarbonisation. Equally other forms of incentives (e.g. reputational) to promote innovation by DNOs could be considered. And in considering the individual components of the price control (output measures, approaches to cost assessment, criteria for innovation funding, incentive mechanisms and rewards, etc), Ofgem may want to consider 'tilting' the design to favour approaches by DNOs that are forward-looking and enabling for the broader decarbonisation of the UK's energy system.

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