

15th January 2025

Ofgem – ED3 Framework Consultation

Contact: Ben Shafran, Head of Markets, Policy & Regulation (ben.shafran@es.catapult.org.uk)
Tom Luff, Practice Manager – Electricity Policy (tom.luff@es.catapult.org.uk)

Summary

Energy Systems Catapult welcomes the opportunity to this Ofgem consultation on the next price control review of electricity distribution network operators (ED3).

The Catapult was set up to accelerate the transformation of the UK's energy system and ensure UK businesses and consumers 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.

Our key messages with regard to the ED3 framework are:

- **Support for Net Zero:** The ED3 framework and decisions with it needs to fully align with the UK's Net Zero targets, supporting the decarbonisation of the electricity system by 2030 (and beyond) as well as enabling the electrification of heat, transport and industry.
- **Flexibility by design:** Flexibility must be at the heart of the ED3 framework and needs to run through the DNA of DNOs' business plans. The current proposals appear to favour a business-as-usual approach, with investment in reinforcement as the default. Instead, there should be much stronger incentives (and requirements) for DNOs to unlock local energy flexibility. There should also be a clear pathway for DNOs to become Distribution System Operators, at least by 2030.
- **Consumer-centric approach:** Rather than the proposed input-based approach, we would like to see ED3 take more of an outcomes-focused approach than previous price controls. Putting a nuanced understanding of consumer needs and preferences at the heart of the price control is the best way to ensure affordability, reliability, and improved service quality, including for vulnerable groups.
- **Innovation:** ED3 must foster mechanisms that encourage innovation within the electricity distribution networks, enabling the integration of new technologies and business models. This includes prioritising third party businesses and creating a level playing field for the best solutions to be developed and adopted.
- **Whole systems thinking:** Adopting whole systems thinking into the price control is welcome. But different interpretation of 'whole system' could lead to very different decisions for ED3. Ofgem should clarify the definition of 'whole system' that it intends to use for ED3 (different definitions might be relevant to different parts of the price control). It is also vital that Ofgem develops complementary changes, such as dynamic DUOS charges.

- **tRESPs:** The current patchwork of local level input and inconsistency over how local level organisations are involved may lead to an unlevel playing field for DNOs. For example, regions represented by local area energy plans will have granular data available to feed into the tRESP and will send a much stronger signal/create a more robust evidence base upon which to support investment decisions.
- **Digitalisation and data:** The use of digital technologies and data analytics is essential for enhancing network management, improve efficiency, and support the integration of distributed energy resources. There should be clear incentives for DNOs to invest in and adopt these technologies (e.g. developing robust data-sharing frameworks, ensuring cybersecurity, and fostering innovation through regulatory support and financial incentives).

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

Sincerely,

Ben

Response to detailed consultation questions

Drivers for change

Q1. Do you agree with our characterisation of the wider context for ED3? Are there any other areas of context that you consider material for ED3?

We broadly agree with the characterisation of the context, particularly in terms of the role of ED3 on the path to decarbonising the electricity sector and, ultimately, to a Net Zero economy. But we think that more emphasis should be given to:

- **Flexibility by design:** Flexibility must be at the heart of the ED3 framework and needs to run through the DNA of DNOs' business plans.
- **Digitalisation and data:** These are fundamental enablers for the transformation of the electricity sector and of heat, transport, etc.. The use of digital technologies and data analytics is essential for enhancing network management, improve efficiency, and support the integration of distributed energy resources – and there should be clear incentives for DNOs to invest in and adopt these technologies (e.g. developing robust data-sharing frameworks, ensuring cybersecurity, and fostering innovation through regulatory support and financial incentives).

ED3 objective and consumer outcomes

Q2. What are your views on our overarching objective and proposed consumer outcomes?

We note that Ofgem has framed one of the objectives in terms of “whole system value for current and future users”. Adopting whole systems thinking into the price control is welcome, but ‘whole system’ can mean different things, for example:

- The whole of the electricity system from generation through to retail
- Electricity and gas networks
- Electricity networks and other low carbon vectors, such as hydrogen and CCUS
- Electricity networks and consumer-side assets, such as heat pumps and EVs

Different interpretation of ‘whole system’ could lead to very different decisions for ED3. So we encourage Ofgem to clarify the definition of ‘whole system’ that it intends to use for ED3 (different definitions might be relevant to different parts of the price control). Ideally, Ofgem would then also develop metrics that can articulate / measure whole system value with respect to the relevant definition.

Regulatory framework

Q3. Do you agree that the network investment elements of the framework should be more input based?

Q4. Do you agree that we should consider introducing additional controls around network investments and what features should these controls contain?

Q5. Do you agree that the incentives on DNOs will need to adapt from RII0-ED2 and if so, how?

Q6. Do you agree that there is still a role for re-openers in ED3, particularly given the timing of the future full RESP output and how should these be triggered?

Q7. Using RII0-ED2 as the counterfactual, what alternative regulatory models or characteristics are needed in ED3 to ensure the DNOs deliver the above consumer outcomes? What are the trade-offs we should consider?

Q8. Do you agree that the regulatory framework for ED3 should have features of the Plan and Deliver model for network investment and Incentive Regulation model for other elements?

Q9. Do you think that there is a greater role for elements of ex post regulation or of cost pass through in ED3, either specifically in assessing cost changes resulting from changes to investment requirements during the period, or more broadly to reflect the changing context?

Response to questions 3-9: Energy Systems Catapult strongly favour outcome-based approaches to energy policy and regulation, since these are most likely to facilitate a focus on innovation to deliver desirable consumer and systems aims.

Ofgem and other economic regulators shifted to more of an output/outcome-focused approach to price control in the early 2010s because of well-established issues with input-based regulation. The ED3 consultation does not explain how Ofgem would overcome those issues – some of which are inherent to input-based regulation.

In essence, an input-based approach requires Ofgem to be confident that it can make trade-offs about the allocation of resources (funds) better than DNOs could. This would seem to run counter to the extensive literature – including Ofgem’s own past publications – about information asymmetry between regulated companies and regulators.

In the ED3 consultation, Ofgem relies heavily on the role of RESPs in enabling it to take more of an input-based approach. While this may be the case for future price controls, it’s less likely to be the case for ED3 with the tRESPs. In particular, the current patchwork of local level input and inconsistency over how local level organisations are involved is likely to result in uneven and incomplete tRESPs – not enabling the high-quality evidence base upon which to support investment decisions.

Overall, we consider that the ambition for ED3 should be a framework that is more outcome-focused than previous price controls. In particular:

- **Consumer-centric approach:** At the core of the framework and of price control decisions should be a consumer-centric approach that ensures affordability, reliability, and improved service quality for all consumers, including vulnerable groups.
- **Innovation:** ED3 must foster mechanisms that encourage innovation within the electricity distribution networks, enabling the integration of new technologies and business models. This includes prioritising third party businesses and creating a level playing field for the best solutions to be developed and adopted.

Networks for net zero

Q10. What is the potential availability of network flex across GB for DNOs in the short term and on the journey to net zero during ED3?

Q11. To what extent are global supply chain and workforce pressures contributing to longer lead times for delivery network reinforcement?

Q12. Do you agree that the risk and downside for consumers of network underinvestment in network reinforcement would be greater than the downside of overinvestment?

Q13. What are the benefits and risks to deliverability if network reinforcement is deferred to future periods?

Q14. What do you see as the role of distributed flexibility, both in the short and longer term, to manage distribution network constraints?

Q15. How do we ensure that network flexibility is used only when it is in consumers' long-term interests in ED3?

Q16. How are unexpected constraints dealt with currently? How quickly can these be eased, and what is the impact of these unexpected constraints (eg on LCT uptake)?

Response to questions 10-16: Flexibility must be at the heart of the ED3 framework. The current proposals appear to favour a BAU approach, with investment in reinforcement as the default. Instead, there should be much stronger incentives (and requirements) for DNOs to unlock local energy flexibility. There should also be a clear pathway for DNOs to become Distribution System Operators, at least by 2030.

We have written extensively about the role of distributed flexibility and how it should be enabled in our recent report '[Enabling Distributed Flexibility for Net Zero](#)' and have presented the report's findings to Ofgem staff. In short, flexibility plays three key roles that must all be encouraged through the ED3 framework:

- Enabling a prioritisation of network investment project – this is especially important given the risk of an overheated supply chain and elevated finance cost during ED3, which in the absence of flexibility would be locked into higher consumer electricity bills.
- Helping to minimise the costs of the electricity system as a whole.
- Managing high impact / low probability events, which could become increasingly a concern with growing electrification.

Q17. Do you agree that the tRESP output outlined for early 2026 will help create a level playing field for DNOs' business planning and support the ED3 objective and consumer outcomes?

In an effort to have tRESP in place ready for ED3, there is a risk that the current lack of formalised processes between high-quality local level input, tRESP and DNO's plans may undermine the objectives of strategic whole system planning.

DNO level playing field

The tRESP output planned for early 2026 is required to ensure network operators can commence their business and investment planning in preparation for ED3. In addition, this is required to ensure there is a common objective for each region and an understanding of what infrastructure and corresponding investment is required.

However, the current patchwork of local level input and inconsistency over how local level organisations are involved may lead to an unlevel playing field for DNOs. For example, regions

represented by local area energy plans will have granular data available to feed into the tRESP and will send a much stronger signal/create a more robust evidence base upon which to support investment decisions.

For areas and regions without a LAEP, there is a risk that tRESP delivers plans of different quality, given the wide variations in local level insights and plans. In this instance, there is a risk that the current Future Energy Scenarios are the de facto evidence base used for investment planning. FES/DFES is not specific about the type of intervention required or scale of investment needed. Instead, they simply illustrates how possible changes in consumer or generation developments could lead to Net Zero. This presents potential issues for DNOs, both in terms of the lack of clarity over what investment is required, where, and the level of administration required to conduct an inevitable reconciliation between tRESP and their single vector investment plans.

Feedback from some of the DNOs we have engaged with suggests a degree of nervousness around the potential for this and re-opens halfway through the ED3 price control due to variation between tRESP, business plans and eventual RESPs

Consumer outcomes

Similarly, for areas/regions where tRESP has been created in absence of local level insight, it will be more challenging to satisfy Ofgem's duty of understanding the full range of consumer interests in the transition to Net Zero. Acting on these interests will require comprehensive stakeholder engagement, integrated via transparent processes and decision making to ensure local level strategic planning.

Q18. Can anticipatory network reinforcement be used to smooth the long-term build profile to avoid creating pinch points for the supply chain and workforce? What are the risks and trade-offs?

Programmes of work will be required to deliver the volume of network upgrades required to support our net zero ambitions. Waiting for a trigger to reinforce the network will risk delaying the roll out of LCTs in peoples homes while they wait for network capacity to become available. The use of very localised, including a single street, flexibility markets should be developed as a transitional tool to ensure people can continue to decarbonise their homes ahead of network reinforcement.

Q19. Do you agree that investment optioneering should aim to reduce the lifetime costs by sizing elements of works for long-term need, including considering the impact of thermal losses?

Response to Q18 and Q19: Yes, to ensure sufficient capacity is built into the network to meet our Net Zero target. The planning standards used to determine the size of the network should be updated to account for peak heating conditions. An average weather year and an average peak demand will likely underestimate the size of the peak heating demand that could be experienced in cold snaps or long cold winters. During cold snaps, when the temperature is around or below freezing for days at a time, the demand from heat pumps will be extremely high and there will be very little diversity in the loading. This will put stress on the LV network where the options to reduce demand in such conditions will be limited. Planning standards should be updated to take account of peak heating demand to ensure sufficient network is built so that people are able to heat their homes when it is most needed.

Questions 20-24 not answered

Responsible business

Questions 25-26 not answered

Q27. Do you consider that ISGs alone are sufficient to ensure high quality and effective consumer and stakeholder engagement throughout the ED3 price control? What alternative or complementary approaches should we consider?

Q28. Do you agree that Ofgem should adopt research approaches, such as deliberative techniques to ensure that the consumer voice is heard and considered throughout the ED3 and company Business Plan process?

Q29. How should our approach to enhanced stakeholder engagement be adapted to better include the perspectives of all vulnerable customers, including those that are seldom heard, digitally disengaged/excluded and those that are worst served?

Q30. What alternative or additional approaches might we use to ensure that the consumer voice remains central to our policy setting process?

It is essential that the outcomes and decisions for ED3 are rooted in a nuanced understanding of consumers' needs and preferences. It is unclear from the framework consultation how consumer engagement would fit in with other elements of the framework. For example:

- How would a consumer perspective – which is likely to be focused on outcomes and outputs – be reconciled with Ofgem's preference for an inputs-based regulatory approach?
- How would the outputs from consumer engagement be reconciled with RESPs? For example, local consumers may express a preference for the level of electricity bill increases that is inconsistent with the level of investment recommended by the local tRESP.

We also encourage Ofgem to build in real-world testing with consumers throughout the regulatory framework – beyond just SIF and NIA innovation trials. We developed [our Living Lab of over 5,000 digitally connected consumers](#) to enable such rapid real-world testing and would be happy to speak with Ofgem about potential use cases for the Lab.

Questions 31-36 not answered

Q37. How should the ED3 framework adapt to ensure that customers connecting to the distribution network are provided with the service that they need from the DNOs?

The decarbonisation of transport, and specifically eHGV, will require connections to the DNO network for chargers across the whole of GB. Currently separate applications to different DNOs need to be made. Each have their own process and standards and different volumes of spare capacity. This is complex for new entrants into the electricity industry. For an eHGV to travel across the country charge points across GB will be required. The speed at which transport can decarbonise will be determined by the slowest connection to the network.

A national view and priority in the connections process needs to exist to take account of transport travelling across the country. The national view of distribution needs to be taken account of within

the RESP and for this to flow down into DNO network plans to ensure there is sufficient capacity to instal chargers.

Q38. In the context of greater electrification, is our current approach towards regulating reliability appropriate for ED3?

Reliability, interruptions and minutes lost are important measures of how well a DNO is performing. During ED1 the installation of remote control switching drove the majority of the improvements, with the DNOs who most heavily invested performing the best. As this measure starts to become less effective new and innovation solutions and technologies should be incentivised to maintain and improve reliability.

Q39 and Q40 not answered

Q41. How should our approach to cost assessment evolve, to enable us to better manage increasingly pronounced trade-offs between consumer protection, efficiency and investment in the distribution network?

Q42. How should our guidance for cost benefit analysis evolve to better enable optioneering between different interventions, taking relevant long-term risks and benefits into consideration?

Response to Q41 and Q42: We support the development of the cost assessment to support the development and upgrading of the network required. The cost assessment should take account of expected future growth and support only touching the network once in an area.

Questions 43-47 not answered

Smarter networks

Q48. How should the price control encourage ongoing development of the DSO role and activities to optimise whole system benefits for existing and future consumers?

Q49. What should the role of the DSOs be in identifying and delivering whole system benefits?

Response to Q48 and Q49: As noted in response to previous questions, flexibility must be at the heart of the ED3 framework and needs to run through the DNA of DNOs' business plans. To that extent, there should be much stronger incentives (and requirements) for DNOs to unlock local energy flexibility. There should also be a clear pathway for DNOs to become Distribution System Operators. We encourage Ofgem to adopt a target date of no later than 2030 for DNOs to become DSOs.

Questions 50-54 not answered

Resilient and sustainable networks

Questions 55-65 not answered

