

Annex 1

Q&A response

Our detailed response to each of the specific questions raised in the ED3 Framework Consultation is set out below. These responses have been drafted so they can be read standalone for readers who may need to focus on specific areas.

This Appendix is broken down into the following parts, tracking the different sets of questions:

- [Drivers for change](#)
- [ED3 objective and consumer outcomes](#)
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- [Networks for net zero](#)
- [Responsible Business](#)
- [Smarter networks](#)
- [Resilient and sustainable networks](#)

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?

Key messages:

- We are broadly supportive of the identified drivers of change for ED3, but additional factors should be considered, including the current "higher for longer" interest rate environment and the global competition for investment and skills in the transition to net zero.
- Beyond identifying drivers of change, it is key that, how these drivers interact with distribution networks and how the ED3 framework will need to evolve to accommodate them, is clear. This includes: the impact of electrification on reliability and Value of Lost Load (VoLL), the resilience of the network in response to climate change, and the importance of a strategic planning approach consistent with strategic changes within the energy system.

Delivering net zero is a collective national effort, benefiting consumers through a cleaner, more secure energy system, and supporting broader societal goals of investment and growth. Government policies, such as Clean Power 2030 and legally binding net zero targets for 2050, set a clear investment path. With only four price controls remaining before 2050, electricity networks must proactively prepare for increased demand – laying the foundation for a resilient, low-carbon grid.

We are supportive of the identified drivers of change for ED3 identified by Ofgem. However, it is key that, how these drivers interact with electricity distribution networks and how the ED3 framework may need to evolve to accommodate them, is clear. In addition, (as detailed below) there are other factors which we believe need to be considered, beyond those outlined in Ofgem's consultation.

- **Impact of electrification on network reliability and resilience:** As outlined in Ofgem's consultation, electricity demand is set to rise significantly in the period to 2050, driven by the decarbonisation of heat and transport. Meeting this demand growth requires significant expansion of the distribution network. This shift brings network reliability and resilience into sharper focus in ED3. As consumers become increasingly dependent on electricity, the importance of having a reliable and resilient distribution network will become more critical;

particularly considering growing climate change and cyber threats. New approaches to measuring and driving reliability and resilience in ED3 will be key to mitigating risks of disruption, as outlined in our response to questions 5, 57 to 59, and 61.

- **Importance of a Strategic planning approach consistent with strategic changes within the Energy System:** ED2 will be the last price control that relies materially on reacting to uncertain and variable customer demand to drive investment in electricity distribution grids. For ED3, therefore, it will be critical to embrace a long-term strategic approach to network development with 2050 in mind. A programmatic approach will be key, underpinned by a principle to 'touch the network once', to minimising disruption to consumers and keeping costs down in the long-term. This needs to be supported by evolved approaches to cost assessment and allowance provision, which we discuss more in our response to question 41.
- **Flexibility and system management:** We agree that increased system flexibility, including DSR at the consumer level, is crucial for balancing the wider system, and making productive use of excess cheap electricity. The growing volume of flexible assets (e.g. EV chargers, batteries) connected to distribution networks offers system-wide benefits, but requires the right incentives and market structures to unlock their full potential. This will transition in ED3, from deferring reinforcement to accelerating renewable connections and managing network risks, is outlined in our response to question 14.
- **Resilience of the Network in Response to Climate Change:** We support Ofgem's ambition to enhance the climate resilience of the electricity network, particularly in terms of understanding the broader impacts of climate change beyond extreme weather events. We believe that further research into how climate variables interact with network assets, including potential synergistic effects, is a crucial next step. This research will be essential for embedding climate resilience into investment decisions, ensuring network reliability, and delivering the best value for money for consumers over the long-term.
- **Connections:** The connections queue is a significant challenge. Meeting the demand for electrification requires a supportive regulatory framework and incentives that align with customer needs. This will involve connecting customers in a timeframe which suits them, and which responds to their needs, rather than as quickly as possible.

Additional factors beyond those in the Ofgem consultation

- **Global Competition for Capital:** In addition to supply chain and skills competition, it is important to recognise the increasing international competition for capital, which will likely impact the ability of Distribution Network Operators (DNOs) to attract the necessary funding for ED3 initiatives.
- **Investment Context:** The current "higher for longer" interest rate environment, combined with global competition for investment in the transition to net zero, presents significant challenges. These factors are critical context for shaping the ED3 framework and must be carefully considered to ensure that the necessary investment is secured to deliver the energy transition in an effective and efficient manner.

ED3 objective and consumer outcomes

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

Key messages:

- We support Ofgem's consumer outcomes and proposed key focus areas for ED3 to enhance consumer value, including addressing connection delays, prioritising resilience investments for vulnerable customers, mitigating climate change impacts, and enabling the transition to net zero through targeted investments in LCTs.
- To deliver these outcomes, we advocate for: a proactive role with new capabilities and KPIs, a longer-term view of value, fairness in decarbonisation efforts, improved network reliability, enhanced consumer engagement, and stronger partnerships across the energy value chain to ensure equitable, efficient, and resilient outcomes for all consumers.

We agree and are aligned to the Ofgem consumer outcomes, namely: Networks for Net Zero; Responsible businesses; Resilient and sustainable networks; and Smarter Networks. Our work on the Consumer Value Framework (CVF) (previously shared with Ofgem and included in this response - Annex 2) explores these issues and suggests how these align to the drivers of change (regional decarbonisation; changing consumer behaviour; social policy imperative; and increased reliance on electricity and criticality of resilience) and potential solutions for their measurement.

Specifically, we have identified several key areas of focus for ED3 from a value perspective in our CVF materials that bridge both Ofgem's consumer outcomes and the drivers of change. Whilst not an exhaustive list, there are several which merit mention and can play a significant role in ensuring consumer value is at the heart of the regulatory framework. In particular:

- **Addressing connections delays and accelerating EV services infrastructure:** Mechanisms designed to deliver connections efficiently in ED3, without significant delay or new investment, ensuring optionality is there for customers to participate in new technologies and the transition.
- **Targeted resilience investments for worst served and vulnerable groups:** Prioritising network performance for customers, including vulnerable customers, on poorly performing circuits not prioritised in the Network Asset Risk Metric (NARM) programme.
- **Targeted investments to mitigate the impact of climate change:** Development of an appropriate set of metrics to measure network resilience – considering the potential impact of climate change – with the aim of ensuring DNOs are sufficiently incentivised to make investments towards reliable and climate resilient networks.
- **Identify areas on network which have disproportionately low take up of LCTs to establish interventions to ensure a just transition for all:** Identify and invest in any areas of the network that are currently incapable of facilitating net zero transition due to network configuration limitations. Therefore, accelerating domestic customer connection requests and improving uptake rates in affected areas, whilst also increasing circuit headroom to facilitate future uptake of Low Carbon Technologies (LCTs).
- **True value of reliability and consumer segmentation and differentiated VoLL to deliver more value:** VoLL updated to reflect expected changes in electricity usage; the macroeconomic landscape (e.g. inflation, cost-of-living etc.) and the increased reliance on electricity. Further strengthened using a differentiated VoLL to reflect customer value and improve DNO investment decisions.

For the objectives and outcomes of these to be truly meaningful, their delivery and associated value must be measured and at the heart of the regulatory settlement. Achieving these outcomes may necessitate a more proactive role for DNOs, with implications for the capabilities that need to be developed.

The regulatory framework needs to enable the delivery of customer outcomes in a fair and flexible manner, supporting the right outcomes whilst ensuring customer value and delivering efficiency aren't in conflict with each other. The framework will also need to take a longer-term view of value and delivery that can evolve in line with changing customer expectations.

We set out below further considerations for Ofgem when considering consumer value.

1. **Proactive Role and Capabilities:** DNOs will need to develop enhanced capabilities and Key Performance Indicators (KPIs) to meet evolving demands. We will need new incentives that align with customer value adding outcomes and can evolve to meet changing expectations.
2. **Longer-term view:** The regulatory framework should include broader value recognition, focussing on outcomes, incentives, and innovation to drive customer satisfaction and network efficiency. We need to ensure that incentives do not focus solely on short-term rewards but also consider value and delivery over the long-term.
3. **Fairness and Inclusivity:** The objective to support decarbonisation is vital and timely. The regulatory framework will need to ensure that DNOs are adequately incentivised in facilitating LCT connections, without creating barriers for consumers or businesses. The proposed outcomes must account for equity and fairness across diverse consumer groups. Vulnerable and underserved communities will need to be prioritised to ensure that the benefits of network improvements, such as improved reliability and access to LCTs, are accessible to all. Therefore, ensuring no one is left behind at this critical juncture of the energy transition and that overall value to customers and society, not simply that which is economic, is enhanced.
4. **Network Reliability:** Maintaining and improving network reliability is critical, given increasing dependence on electricity. Enhanced information provision on outages, particularly for vulnerable customers, requires better Customer Relationship Management (CRM) systems. This objective aligns with Ofgem's consumer outcome – responsible businesses; and resilient and sustainable networks. Public perception is vital to encourage investment and innovation for the energy transition, requiring focus and effort on consumer awareness of DNO performance. This aligns with Ofgem's consumer outcomes – responsible businesses; and networks for net zero.
5. **Consumer Engagement:** DNOs will need to explain infrastructure investments, including costs and disruptions, to gain community support for necessary changes. We will need to actively engage with local communities, businesses, and other stakeholders to understand their specific needs. Clear communication about costs, benefits, and timelines for network investments will be critical to building trust and ensuring public support. This aligns with Ofgem's consumer outcomes – responsible businesses; networks for net zero; and resilient and sustainable networks.
6. **Partnerships and Collaboration:** DNOs will need to actively engage with other suppliers in the energy value chain by sharing data on supply, demand, and capacity. This information can guide third-party investment and help prioritise network reinforcements. DNOs will need to adopt a collaborative role with customers and intermediaries, leveraging engineering expertise to address connection challenges, identify opportunities, and provide innovative solutions. This aligns with Ofgem's consumer outcomes – smarter networks; and responsible businesses.

Regulatory framework

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

Key messages:

- A strategic, long-term view of network development is essential for attracting investment and ensuring that the framework can adapt to evolving requirements, such as government policy and decarbonisation goals, without stifling innovation or being excessively prescriptive in defining outputs.
- The ED3 framework should focus on outputs and incentives, prioritising consumer value, innovation, and flexibility to deliver Clean Power 2030 and net zero targets, rather than being overly input-based. This approach encourages networks to focus on outcomes, such as reliability, connections, and customer service, while allowing for innovation and non-build solutions.

The ED3 framework needs to balance several investment considerations to enable the timely delivery of net zero targets.

The framework should provide for a more strategic and longer-term view of network development, to attract investors and enable confident planning of the key milestones required to achieve decarbonisation goals. As well as flexibility for DNOs to adjust investment plans where required (e.g. due to RESP outputs), to ensure load and non-load related investments are considered holistically. Ensuring optimised, innovation continues to be actively encouraged, and non-build solutions are considered to ensure consumer value remains paramount.

Whilst input-based elements of the framework could provide some certainty of outputs, we believe an outputs and incentives approach to network investment to be more suited to ensuring consumer value, innovation and financeability objectives. Output and incentive-based regulation, prioritising key consumer values – including, reliability; connections and customer service; and ensuring networks are motivated to focus on outcomes and development of innovative approaches to delivery and delivery of value, rather than input-driven regulation – will more likely achieve the desired consumer outcomes that Ofgem has highlighted in its ED3 framework. This approach ensures the framework remains responsive to changing requirements and pliable enough to flex with the inevitable adaptations (e.g. Government policy and NESO driven plans) that will be necessary to keep aligned to the trajectory of the energy transition. The framework should avoid being overly input-led or excessively prescriptive in defining outputs, as this can stifle innovation. Instead, it must be flexible enough to adapt to evolving inputs and requirements, leveraging scalable and adaptable mechanisms. It should focus on achieving the desired outcomes rather than prescribing specific solutions, as this approach better fosters innovation and the adoption of the latest technologies.

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

Key messages:

- We welcome clarity around load-related system needs and emphasise maintaining an output and incentive-based approach for non-load related system investments to encourage innovation and deliver consumer value. Any additional controls or ringfencing should facilitate efficient network delivery and avoid hindering progress.
- The regulatory framework for Load Related Expenditure (LRE) should be redesigned to incentivise timely investment, providing DNOs with a longer-term LRE allowance that spans multiple price controls. This would enable DNOs to plan more effectively, enhance supply chains, and align with decarbonisation goals, whilst ensuring transparency in investment plans and decision-making.

We would welcome greater clarity for load-related system needs. We also believe that maintaining focus on outputs and incentives for non-load related system need is important, to ensure DNOs are encouraged to innovate to deliver value for consumers.

To deliver the increased volume of work for consumers in the run up to 2050 – across asset health, load growth, and connections – there will need to be increased interaction at the point of work to ensure system access is maximised and that, wherever possible, we ‘touch the network once’. Any additional controls, or ringfencing of specific funding, should be implemented in such a way to encourage this type of efficient delivery, rather than block it.

We believe the regulatory framework for LRE should be redesigned to incentivise investment delivery. With greater strategic direction provided to DNOs on the pathway to a decarbonised future; we believe this can unlock access to a longer-term LRE allowance that spans multiple price controls. A longer-term allowance can help to unlock opportunities for DNOs to deliver investment at pace, bolster supply chains, and plan the workforce required to deliver on the RESP pathway. We recognise that in providing a longer-term allowance for LRE, this will need to be supported by increased transparency of investment plans and the decision-making framework followed by DNOs.

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

Key messages:

- Incentives in ED3 should evolve to better align with the UK's Clean Power 2030 and net zero goals, with a stronger focus on consumer value, including social benefits, and the delivery of long-term outcomes. This includes adapting existing incentives like IIS, BMCS, and TTC to drive improvements that reflect the evolving needs of customers and consumers, as well as introducing new incentives such as climate resilience and collaborative connections.
- The regulatory framework should emphasise innovation and flexible approaches to incentivise DNOs to develop and implement solutions that align with evolving consumer needs and decarbonisation objectives.

We believe that ED3 is the appropriate milestone to make significant changes to the package of incentives currently in place in ED2 as it will govern a pivotal phase in the UK's energy transition. ED3 will also be the first distribution price control where Ofgem must exercise its new statutory

duties related to net zero and economic growth, alongside its core obligation to protect the interests of current and future consumers. In addition, new institutional governance arrangements (e.g. NESO's RESPs output), will be in place and will shape ED3 business plans. In this context, it is crucial that the ED3 framework identifies and measures what consumers value, and that mechanisms enable the right trade-offs, so that DNOs deliver what matters most to consumers. Changes will be required to ensure that, amidst growing customer expectations and unprecedented demand on the network, companies remain driven to deliver optimal, long-term outcomes for customers.

Therefore, it is more important than ever that the regulatory framework is centred around customer value – including broader identification and measurement of value (e.g. social benefits). In addition, the overall package needs the right balance of targeted incentives, whilst not restricting companies from responding to in-price control changes, to ensure the right outcomes overall.

We have provided Ofgem with our CVF proposal (see Annex 2) which sets out a framework which helps identify, quantify and measure consumer value to ensure that consumer value is at the heart of the decision-making process. This process can be augmented with a suitably robust Impact Assessment framework (Annex 3), which can assist Ofgem to ensure a clear line of sight and provide an evidential trail for how policy has been developed. This affords Ofgem the means to demonstrate how it has considered and fulfilled its new statutory duties for net zero and growth. It is imperative that a robust evidence base is collected on the stated effect of its decisions and their alignment to the Consumer Interest Framework. Whilst also providing transparency on the relative weighting of these decisions across the price control, ensuring balance and adequate consideration is given across the range of competing needs and outcomes.

With this in mind, we believe that several incentives are coming to an end in their current form, whilst new areas are emerging that require the focussed attention of network companies as summarised below.

Evolution of current incentives

- **Interruption Incentive Scheme (IIS):** The current IIS incentive has been highly successful in driving performance improvements for customers, with Customer Interruptions and Customers Minutes Lost for the first year of ED2 reducing by 50% and 65% respectively compared to the beginning of DPCR5 (2010/11). In 2023/24 (year 1 of ED2) the average NGED customer now experiences less than one interruption every two years, with an average length of 24.5 minutes. However, the current KPI against these metrics target *average* service, which encourages companies to address the peak of the performance bell curve. We believe that targeted improvements for those most in need (without breaching the non-discrimination licence obligations) is required to prevent customers from being left behind. This could be achieved by switching to a segmented, minimum level of service approach with the aim of driving equitable levels of service for all customers. Instead of sole reliance on overall targets, segmented targets – based on customer/connection type, vulnerability, sparsity, off-gas, etc. (which would need to be facilitated in a way which does not conflict with SLC19) – could begin to address this. (Question 38)
- **Broad Measure of Customer Satisfaction (BMCS) Incentive:** Since 2015/16, we have maintained a ~9/10 combined customer satisfaction score. ED2 has seen a significant step change in BMCS targets, ensuring the level of service provided by DNOs, at a time of increasing customer expectations, has been maintained. However, there is a question around the value of continuing to raise targets in this area when performance is already high. In addition, as customers become more reliant on electricity, their level of expectation will also increase, therefore, to maintain current levels of service will require significant work.

Furthermore, we believe that the scope of the current surveys, particularly considering the minimal gains territory DNOs are operating within, should be reviewed to determine if more granular or segment specific measures are needed in this space. For example, the BMCS could provide tracking of customer satisfaction for Priority Service Register (PSR) customers, as a sub-set of overall customer satisfaction with a separate target if required. (Question 31)

- **Distribution System Operator (DSO) Incentive:** The current framework is optimised for driving least cost solutions without consideration of the whole life value of a solution. To optimise the framework for ED3 and beyond will require a framework which incentivises companies to build and operate a network that follows the right pathway to delivering net zero. (Question 48)
- **Customer Vulnerability Incentive (CVI):** PSR reach is likely to reach 90%+ by the end of ED2, so it will become increasingly difficult to target further coverage improvement. However, data quality is equally as important and will continue to be an area requiring work to improve/maintain. Therefore, a shift to targets based on quality, rather than quantity, of data seems appropriate. In addition, if Ofgem wants greater alignment with the Gas Distribution sector, work will be required to deliver a more standardised service to PSR customers in the event of an emergency or long outage, satisfaction of this service could be tracked through the BMCS or similar. (Question 32)
- **Time to Connect (TTC) Incentive:** The TTC incentive has been a useful tool to ensure we are delivering for our customer's needs. Going forward, to ensure that the mechanism continues to drive the right behaviour, TTC should be adapted to ensure realistic connection dates for both DNOs and connecting customers, noting that customers may not necessarily want their connection as soon as possible but, more importantly, at a time that suits them. This could be accommodated by adjusting the TTC methodology, so the date the customer is ready and third-party consents/access issues have been resolved, becomes the point at which the clock starts. (Question 34)
- **Major Connections Incentive (MCI):** Major connections are lengthy, but current MCI is quantitative and based on only two milestones (i.e. receipt of quote and connection). To further improve customer service in this area, we believe further trigger points and qualitative feedback from customers should be incorporated. Given the growth in the Independent Distribution Network Operators (IDNO) and ICP sector, the MCI should also apply to all participants, to ensure that consumer value is driven throughout the overall connections process. (Question 36) ***New areas of focus***
- **Climate Resilience:** We are keen to see the development of an appropriate set of metrics to measure network resilience, taking into account the potential impact of climate change, which will enable DNOs to manage the risk to network assets efficiently, whilst helping the country meet the government's net zero ambitions. However, we question whether as an industry we will be able to settle on the right metrics and targets in time for ED3, given the lack of research and associated data – which will prevent us from determining whether a metric is worth monitoring, establish historical benchmarking, and ultimately set appropriate targets. Without additional research, we cannot ensure the climate is a proportional driver when assessing our network. Equally, Ofgem cannot assess whether network companies are investing in the right things at the right time. Therefore, given this gap and the pace at which it needs to be addressed, we believe that an incentive mechanism may be appropriate to bridge the research gap, with a view to enabling the development of meaningful KPIs, with appropriately benchmarked targets, to be set in ED4 and beyond. (Questions 57-59)
- **Collaborative Connection Activity:** Introduction of mechanisms to incentivise and reward collaboration among DNOs, IDNOs, and Independent Connection Providers (ICPs). These mechanisms should recognise instances where such partnerships have enhanced customer

service and expedited connections to meet Clean Power 2030 and net zero targets. This would encourage solutions that overcome external blockers to connections beyond the control DNOs. (Question 37)

- **SF₆:** Given potency of SF₆ as a greenhouse gas, we believe consideration should also be given to the development of an incentive that encourages development of more proactive responses to SF₆ leaks. This could include, improving visibility of SF₆ pressures in apparatus containing larger quantities of SF₆ on a proactive basis versus the historical reactive response of receiving an alarm. This is a new area which needs development as it would require constant monitoring and a full understanding of apparatus and area temperature to be able to correlate the pressure being read against that which would be expected. (Question 60)
- **Biodiversity Net Gain:** Given the scale and pace of change anticipated for ED3, we believe it would be appropriate for DNOs to be incentivised to collaborate with other parties to leverage greater strategic impact on nature improvement. This incentive would drive DNOs to go beyond the legal minimum requirement, encouraging the delivery of high value additionality (as determined by social impact methodology). (Question 60)
- **Positive Nature and/or Societal Impact:** The use of carbon mitigation, pollution control, and adaptation solutions to meet business needs can also have additional benefit to nature and/or a positive societal impact. To encourage this behaviour, an incentive could be established which would encourage DNOs to deliver integrated solutions as part of their investment decision process, whereby DNOs would have to demonstrate the natural or societal value delivered (e.g. ecosystem enhancement and biodiversity benefits, including pollinator habitats; community benefits, including cleaner air and creation of recreation space; and wider societal benefits, including natural flood management). (Question 60)

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?

Key messages:

- Re-openers should continue to play a crucial role in ED3 to maintain flexibility and adaptability in response to evolving government policies, technological developments, and uncertainties, particularly in areas like LRE and RESPs. These mechanisms will help DNOs adjust to new inputs and requirements without disrupting committed delivery programmes.
- To avoid complexity and delays, re-openers should be agile, transparent, and timely, with a focus on driving necessary investment and ensuring DNOs can scale teams and capabilities as needed. A consolidated 'Policy Delivery UM' should be introduced to encourage proactive and holistic responses to public policy developments, combined with baseline funding, to enable DNOs to engage effectively with policy changes.

A regulatory framework, whether it remains more aligned to the 'incentive regulation' framework or becomes more aligned to the 'plan and deliver' model as proposed in the consultation, will necessitate the continued use of re-openers (or a similar mechanism). These will be key in ensuring the price control remains agile to changes in government policy and technological developments, an area where there is still uncertainty for ED3, as in ED2. Such developments may alter load related requirements within the price control and indicate a future requirement for DNOs to ready themselves for increased output in future price controls. The introduction of the transitional Regional Energy Strategic Plans (tRESP) is expected in Q1 of 2026. This is due to be followed by a decision from DESNZ on the role of Hydrogen for domestic heat, which is expected in 2026, and the first

enduring RESP expected to be published in Q4 2027. This indicates there could be two major updates to government policy and the inputs used to shape the business plan which will not be reflected in Final Determinations. These decisions will impact one of the most significant areas of uncertainty in the role of distribution networks for achieving local and national decarbonisation targets.

We believe the introduction of RESP presents an opportunity for a different approach to Load Related Expenditure within ED3, which could include allowances that span multiple price controls. Updates to key inputs, such as RESP, through a re-opener style framework can provide greater clarity on the long-term strategic direction (which is linked to allowances), but without significantly impacting the committed delivery programme within price controls, as outlined under a plan and deliver framework.

We also agree that there remains a role for re-openers across wider investment areas. Re-openers should continue to play an important role where the needs case, project scope or quantities of investment are uncertain ahead of a price control. Continuing examples are where there are expected ongoing changes in government policy (e.g. rail electrification) and legislative changes (e.g. it is still unclear at this time whether DEFRA will go beyond the EU requirements and want proactive removal of SF₆ containing assets – see question 60).

An associated requirement, alongside increasing work programmes awarded through re-openers, will be the Indirects Scaler, where an increase in capex programmes drives the need for associated Opex delivery and support costs. This important principle was recognised for LRE at ED2 Final Determinations and in the Storm Arwen Re-opener Final Decision in December 2024 and should continue into ED3. We also discuss in question 37 the need for adaptability to scale up teams and capability for connections policy and process where needed to address external drivers, such as, Government energy policies; regulatory and code reforms; and energy market dynamics. There is a clear requirement for adaptable uncertainty mechanisms which provide coverage wider than traditional investment programmes.

balance needs to be set to ensure that the number and timings of re-openers do not overburden both DNO and Ofgem teams. To accelerate necessary investment, uncertainty mechanisms need to be agile, transparent, and timely, and a substantial re-opener programme with delays in assessment could counteract this.

In light of this, it is important to avoid over complexity in ED3, particularly given the range and scope of potential incentives and uncertainty mechanisms, which may also have significant interdependencies. In response to ED2 Draft Determinations, we proposed a wider single consolidated 'Policy Delivery UM', open to both Ofgem and the DNOs to trigger, which would encourage more holistic responses to public policy developments. This should be combined with additional baseline funding to ensure DNOs are able to engage proactively with policy development and so be in the best position to respond rapidly.

Q7. Using RIIO-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?

Key messages:

- The ED3 framework should evolve from ED2 to a more strategic, long-term approach, incorporating a hybrid model of incentive regulation and 'plan and deliver.' This would support strategic investment based on RESPs, addressing the increasing demand from electrification and LCTs.
- Whilst fostering long-term planning, the new framework should avoid being overly prescriptive or rigid in terms of investment solutions, to maintain flexibility for innovation and efficiency. Additionally, it is crucial to balance regional planning with customer and community input to ensure investments align with local needs and deliver value.

At a basic level, we consider that the RIIO incentive regulation model is largely fit for purpose. The model has the ability to foster efficiency, innovation, and quality of service. Rather than pursuing a different model or radical changes to the existing framework, we advocate evolving, adapting, and simplifying the existing RIIO framework. However, compared to ED2, which was mainly reactive, focussed on the five years ahead, ED3 should be anchored in long-term system planning, supported by RESPs, to inform and assure future anticipatory and strategic investment needs. ED3 should be viewed as the first five-year period of a 20-year investment programme. The ED2 incentive regulation model should evolve to accommodate a 'plan and deliver' model which facilitates planning and investing ahead of need to ensure that networks can accommodate increased demand from electrification and other LCTs.

A hybrid approach, with incentive regulation at the core and 'plan and deliver' for specific investments, is better suited to manage the trade-offs at ED3 between ensuring delivery of investment to support the transition to net zero on the one hand and ensuring efficient investment and high service quality on the other.

There are additional trade-offs that must be carefully judged as we develop the hybrid model. For example, a 'plan and deliver' model led by RESPs, must not be overly prescriptive in terms of investment solutions and output definitions. A framework solely driven by RESP outputs may provide enhanced consistency and accountability, but the trade-off is that it may limit efficiency and innovation. It is also important that a regional planning framework does not diminish the voice of customers and local communities, and their specific investment needs.

In summary, ED3 needs to be a more strategic and flexible regulatory framework than ED2. It must promote long-term planning, and anticipatory investment, while also being customer-focused and incentivising innovation and efficiency.

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?

Key messages:

- The Incentive Regulation model should remain the core dominant regulatory framework for ED3.
- The regulatory framework for ED3 should combine elements of the 'Plan and Deliver' model for specific network investments, specifically those supporting the net zero transition, but preserve key elements of the existing Incentive Regulation model. This hybrid approach would enable proactive, anticipatory investment while preserving efficiency and innovation incentives.
- DNOs should retain flexibility and autonomy in investment decisions, ensuring they can respond to consumer needs and regional priorities while aligning with strategic plans like RESPs. To optimise decision-making, fungibility of allowances should be maintained, enabling DNOs to carry out optioneering and select the most effective solutions throughout the price control.

The Incentive Regulation model has demonstrated its effectiveness in promoting efficiency, innovation, and service quality, delivering tangible benefits for Great Britain's energy consumers. We believe this should remain the core, dominant regulatory framework for ED3.

We recognise the merits of the 'plan and deliver' model for specific areas of network investment. This model is compatible with the RESP framework. Its primary value lies in providing a clear and consistent process to facilitate integrated energy planning across infrastructure networks and enable a proactive approach to investment. This approach is especially valuable for load-related investments supporting the UK's transition to net zero, where collaboration and anticipatory investment are essential.

However, we believe that the 'plan and deliver' model's implementation should preserve key elements of the Incentive Regulation framework. Specifically, the 'plan and deliver' model should maintain ex-ante cost allowances (with appropriate customer protections) to preserve strong efficiency and innovation incentives. Furthermore, substantial fungibility must be retained to ensure optimal solution selection throughout the price control period.

DNOs should maintain their central role in regional investment planning. While RESPs will identify specific (strategic) investment drivers, they should not constrain DNOs through overly prescriptive investment plans. DNOs must retain the ability to determine additional investment considerations beyond those identified by RESPs, consistent with their customer preferences (and in our case, with our CVF). The flexibility to identify and quantify the consumer value delivered across investments – which will both support strategic investments (i.e. RESP), as well as through additional areas of investment which maximise the broader concept of consumer value, such as the areas highlighted in our CVF proposal (Annex 2) – will be a vital component of the regulatory settlement. DNO's are best placed to identify and manage the identification and delivery of consumer need, therefore, it is vital that the ED3 framework provides sufficient autonomy and funding routes to deliver on this capability. As set out in our CVF, we have initiated further areas for review that we believe can facilitate and underpin the energy transition for a broad range of need and consumer archetypes to ensure a fair transition for all and delivering maximum consumer value across this broader remit.

When implementing a hybrid model, combining 'Plan and Deliver' with Incentive Regulation, it is crucial to have a clear delineation of costs subject to each model. The scope of costs under the

'Plan and Deliver' model must be precisely defined to enable consistent and comparable assessment of costs under the Incentive Regulation model, particularly given the latter's reliance on cross-DNO benchmarking. This is an especially important when considering the identification and treatment of indirect costs associated with the investment programmes in the different models.

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?

Key messages:

- While ex-ante regulation should remain the dominant framework in ED3, due to its effectiveness in fostering innovation, cost efficiency, and investment stability, there may be a role for limited ex-post regulation in specific areas with high uncertainty, such as load-related investments.
- Any regulatory mechanism (ex-ante, volume drivers, re-openers, or cost pass-through) must be agile, transparent, and flexible to address uncertainties effectively, ensuring that investment in capacity is not delayed.
- The regulatory framework should prioritise ex-ante regulation with sufficient fungibility to allow DNOs flexibility in responding to unforeseen costs, whilst ensuring a stable and predictable investment environment. Ex-post regulation should not replace baseline funding but should be used in specific cases where investment requirements change, ensuring the overall framework remains financeable and attractive to investors, especially in the context of net zero.

We do not consider the changing context warrants a broad shift to ex-post regulation – the future regulatory model should continue to rely predominantly on ex-ante regulation. Ex-ante regulation has proven effective in fostering innovation, promoting cost efficiency, and providing the stability and predictability necessary to attract sector investment. The approach has consistently delivered significant efficiency and performance improvements for customers over successive price controls.

Nevertheless, we recognise the heightened uncertainty surrounding the transition to net zero and its implications for network investment. This uncertainty may require ex-post regulation in specific areas (e.g. specific load related investments and their enabling (indirect) costs) to facilitate changes to investment requirements during the period. To be effective and to ensure investment in capacity is not delayed, any ex-post regulatory mechanism must be:

- Agile and responsive to changing needs.
- Transparent in its application.
- Light touch in its implementation.
- Free from retrospective regulation.

Given that electricity distribution is characterised by a large volume of relatively standardised investments, uncertainty in specific areas can be effectively managed through price control mechanisms, such as volume drivers, rather than introducing the complexity and uncertainty associated with ex-post re-openers.

Ex-post regulation should not displace additional baseline funding where required, to ensure DNOs are able to engage proactively with policy development and respond rapidly and thoughtfully. As also discussed in the response to question 8, substantial fungibility (which would decrease in an ex-post framework) must be retained to ensure optimal solution selection throughout the price control

period and to ensure DNOs can deal with unforeseen costs in a way that doesn't increase risk. The retention of predominantly ex-ante regulation with fungibility of allowances should be prioritised.

We note Ofgem's statement on page 24 of the ED3 Framework Consultation, "Ex ante allowances provide certainty for companies to keep the cost of capital low." While we agree this holds true for predictable costs, ex-ante regulation actually presents higher risk in contexts with significant cost uncertainty. But also, as Ofgem notes on page 26 of the consultation, ex-post assessment carries its own risk, particularly disallowance risk. We discuss this further regarding the cost of capital in question 45. Ofgem should aim to keep what is good about RIIO, to maintain the relatively low cost of capital in regulated infrastructure relative to other sectors, but the focus should be on setting the 'right' cost of capital. This needs to be sufficient to attract the significant level of capital required in an environment of increasing, international, competition for capital in the push for net zero. It is critical that the ED3 framework is financeable and investable to attract the necessary levels of capital. The implications of ex-ante vs ex-post regulation need to be considered within this context.

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?

Key messages:

- The increasing volume of flexible assets (EV charge points, batteries, heat pumps) connected to distribution networks offers significant potential for system-wide benefits, but these assets need access, the right incentives and market structures to fully exploit their value to support timely investment and system management.
- ED3 should support the broadening out of use cases for flexibility (e.g. managing the risk around network build, accelerating renewable connections, providing benefits to the wider system), the development of coordinated markets that are attractive to flexible assets, alongside an enhanced approach to quantifying flexibility.

Through significant effort across the flexibility value chain, the volume of flexible assets connected to the distribution networks is growing. We expect this to continue, especially with the connection of more flexible assets such as EVs, heat pumps and batteries, and the delivery of enablers such as half hour settlement.

In the last year we have doubled the number of flexible assets available to us, to over 150,000. We now have approximately half of electric vehicle charge points available to us. By 2028 that would equate to over 300,000, and by the end of ED3 that could be over 900,000. That equates to 1.2GW of turn down flexibility, assuming no V2G. Our Equinox innovation project is also highlighting the flex available from heat pumps. Further flexibility will also be available from larger scale battery storage. The Clean Power 2030 process and the subsequent Strategic Spatial Energy Plan will identify the volumes of storage required on the system as we decarbonise, and the current queue far exceeds the identified need.

The key question surrounding this flexibility will be how to access and coordinate it. If we are to harness the large volume of potential flexibility, it is important to design use cases and markets that are attractive to flexible assets whilst delivering value across the system. In ED2, the focus of distributed flexibility was on deferring reinforcement. As detailed in question 14, this will transition in ED3 to other use cases such as: managing the risk around network build; accelerating renewable connections; and providing benefits to the wider system. To unlock the flexibility, it will be important to develop new whole system thinking, so the ever-increasing number of assets connected to the distribution networks can be used to manage a wide range of system issues on both the transmission and distribution networks.

On a point of detail, care needs to be taken when quantifying flexibility volumes. The installed capacity of an asset isn't the same as the flexibility availability. The volume of flex available from an asset is often a fraction of the installed capacity and is often asymmetric; the available upward flexibility and downward flexibility will normally differ.

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

Key messages:

- The growing need for skilled labour and supply chain investment is crucial for the ongoing growth of the network. Workforce development through apprenticeships and graduate programmes is a key strategy to address talent shortages, but time to competence for roles is typically around three years, and longer for specialist positions.
- Supply chain pressures are exacerbated by global competition longer lead times for equipment like transformers; and material shortages due to volatile commodity prices, geopolitics, and natural disasters. These challenges highlight the importance of workforce renewal and securing supply chain resilience to meet growing network demands.

We remain on track to deliver network reinforcements required in the ED2 period and are looking at ensuring readiness for the ongoing growth of the network. We are in a global race to deliver net zero, meaning that clarity on need is ever more important to provide required certainty to supply chain partners to invest in UK delivery, and to attract and retain the skilled employees needed. We discuss this in more detail in later questions. There is also wider benefit to the wider UK Economy and mitigation of workforce constraints in the medium term through workforce renewal and training initiatives, as skilled labour increases across supply chain.

Workforce pressures and talent market constraints mean our talent strategy is more skewed towards developing talent through apprentice and graduate programmes than experienced hires. This means the time to competence for our roles is on average three years. This time to competence increases further with more specialist technical roles.

Supply chain will continue to be under significant pressure from growing global workbook set against insufficient capacity to deliver. For example, we are seeing the lead time for equipment, such as transformers increase to multiple years, with increased difficulty in securing component parts of transformers due to geopolitical factors. There are also macro challenges limiting the ability to grow supply, such as material shortages driven by increased commodity prices volatility (e.g. copper price increase of 50%-70% over the last few years), with geopolitics and natural disasters adding to supply chain risk and disruption.

This is discussed in further detail in Q63 and Q64.

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?

Key messages:

- In a future characterised by demand growth, the risk to consumers of under-investment is significant, with clear investment needs and substantial costs for delay or constraints on customer connections. Ensuring timely investment is essential to avoid hindering decarbonisation efforts and to meet growing customer demand for low-carbon technologies.
- ED3 needs to be an investable framework that balances risk and returns to attract capital and consider broader benefits of investment in the distribution network. DNOs should demonstrate delivery aligned with RESP pathways but retain the flexibility to deliver solutions beyond prescribed pathways to respond to emerging needs.

To understand the risk of under or over investment we believe it would be beneficial for Ofgem to outline what 'optimal' investment is for ED3 and the context of net zero. For Ofgem to adequately quantify the risk appetite for ED3, the following key points should be considered.

Delivery resource and timing of build: Significant investment is required between now and 2050 to deliver net zero. Leaving this too late significantly increases the risk of DNOs becoming a blocker to local and national decarbonisation targets. However, if we accelerate too rapidly this could put undue pressure on supply chains and skills, artificially increasing costs and impacting consumer bills unnecessarily.

Alignment to external drivers for change: To ensure that build occurs in the right place in a cost-efficient manner, we believe that there should be a requirement to demonstrate that investment aligns with the RESP pathway and Clean Power 2030 targets. Crucially this must also ensure that networks do not invest in areas where a need is not outlined in the RESP pathway (or through certainty of new customer connections).

Greater visibility of network compliance: To ensure that investment is delivered where it needs to be (rather than just where it is simple to do so), requires greater controls to allow DNOs to demonstrate that the network delivered is aligned with the external drivers and adequately delivers a safe, secure network. We believe that this can be achieved by consolidating the requirements for planning a distribution system into a single document that can be used as a point of reference, in a similar form to the Security and Quality of Supply Standard used at transmission. This can be monitored through a more comprehensive regulatory reporting requirement to demonstrate compliance with the standard (to enhance the existing Annex E of the RRP).

Customer expectation for network access: The risk of underinvestment is that the network becomes a blocker for decarbonisation. It is important that we deliver network investment in a timely manner to allow renewable generation to connect when needed, and consumers to connect their EVs, heat pumps, solar panels and batteries when they want to. Understanding the value that network users put on timely access can be used to quantify the value of headroom, which can inform DNOs' proactive approach to system planning at ED3. We have raised this point within our CVF proposal (Annex 2) as an area for further investigation and to potentially develop a form of measurement that assists DNOs to evidence and demonstrate the value to consumers across a range of activities and deliverables. This includes the value to consumers of timely access and the need to ensure the increased and necessary uptake of LCTs is adequately facilitated to ensure all consumers have the opportunity to engage in the energy transition.

Customer bill impact: The value of network investment has historically been considered from a distribution network perspective and the direct cost to consumer bills through DuoS. With the increasing growth of flexible and low-carbon assets connected to the distribution system, it is important that they have access to income streams across the whole system to make them viable and deliver value to consumers. This will have the impact of increasing DUoS, which could be offset, for example by reduced balancing costs.

Cost of equity: There is broad agreement that setting returns too low is more detrimental to consumers than setting returns too high, in that the consequences of underinvestment far outweigh the impact of setting a slightly higher cost of equity. This asymmetry is exacerbated in the context of ED3 where, as Ofgem states in para 6.21, it is in consumers' interests to avoid distribution networks becoming a blocker to net zero, and "the risk and downside from overinvestment in a future characterised by rapid demand growth will reduce and the risk and downside for consumers from delayed investment will increase." Whilst Ofgem acknowledges this

in the context of agreeing network investment plans, such plans will only be realised when sufficient capital is attracted to fund them.

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

Key messages:

- The transition to ED3 presents opportunities for optimising LRE through flexibility services, deferred reinforcement, and non-wires alternatives, which can minimise customer bill impacts, reduce embodied carbon, and improve resource efficiency. However, deferring reinforcement carries risks, including reduced network health, missed decarbonisation opportunities, and inefficiencies due to backloaded reinforcement work.
- To better align LRE and strategic planning, Ofgem should consider allowing partial cost apportionment across multiple drivers for activities delivering benefits over longer time periods.

The transition from ED2 to ED3 and beyond presents both challenges and opportunities for managing Load Related Expenditure (LRE) delivery risks in electricity distribution networks.

During ED2, there was a notable 40% increase in LRE from ED1, accounting for 14% of total expenditure (totex). This trend is expected to continue, with projections indicating that by 2035, 50% of the primary network and 20% of the secondary network could be operating beyond their asset rating peak.

Benefits of Deferring Reinforcement

Deferring network reinforcement while maintaining operability through flexibility services and enhanced ratings can offer several advantages. Firstly, it can minimise the impact on customer bills and avoid the increase in embodied carbon associated with upgrade works.

Additionally, deliverability can be enhanced by providing more options for the timing of reinforcement delivery, thanks to non-wires alternatives. This approach also opens up opportunities to align adjacent non-LRE triggered works, achieving cost optimisations.

Moreover, having more flexibility in the timing of activities can support the efficient use of resources, especially when current volumes of need exceed delivery capability. This can equally apply to building up the supply chain for assets and equipment.

Risks of Deferring Reinforcement

However, deferring reinforcement is not without risks. Reinforcement creates capacity for future demand and supply, and delaying it might miss opportunities to accelerate the uptake of decarbonised demand and supply.

Additionally, reinforcing assets through LRE interventions positively impacts the overall health of the network, so delaying these works could reduce the average network asset health. There is also a risk that delaying works could hinder the ability to support aggressive electrification growth in the future, potentially closing off some net zero pathways.

The backloading of conventional reinforcement and then having to deliver greater volumes in a shorter time frame, could introduce inefficiencies, both within resources and the overarching supply

chain. Finally, inconsistent delivery requirements might impede future skills development and resource growth.

Strategic Planning and DSO Optimisation

Throughout the ED2 period, NGEDs DSO has identified several areas where strategic planning out to 2050 has opened up opportunities for LRE and asset replacement optimisations. However, the current rigidity in allocating activities that deliver benefits across multiple drivers to a single driver for allowance purposes can cause over or under-reporting across cost categories. This situation potentially creates a conflict of interest between DNOs and DSOs.

Currently, costs for activities delivered are linked to a single main trigger only, missing attributing benefits or costs across multiple drivers. There is an opportunity for Ofgem to consider allowing apportionment of partial costs of activities to be managed and justified by the DSO, especially where strategic enhancement would deliver benefits across a time period longer than the price control, which could unlock further optimisations within ED3 and beyond.

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

Key messages:

- Distributed flexibility is a crucial tool for managing and optimising network capacity, supporting both investment deferral and broader system operations. As more active devices connect to the network, flexibility will play an increasing role in accelerating connections, managing capacity, and reducing risks associated with network build and operational needs.
- Ofgem should support the development of flexibility use cases in ED2 and acknowledge its complementary role alongside network build, ensuring flexibility is integrated into the broader strategy for capacity management.

Distributed flexibility has emerged as a key tool for DSOs to manage network constraints. As ED3 widens the focus from DNO cost optimisation to whole system value creation, we see the focus of flexibility shifting from investment deferral, to supporting the delivery of an optimised build plan that delivers maximum benefit across the system.

Distributed flexibility is currently one of several tools available to deliver capacity on the distribution network, (alongside network reinforcement, and wider smart alternatives). This capacity can be delivered, both in planning and operational timeframes. Initial development of flexibility services on the distribution side focussed on the use cases with direct benefits to the DNO/DSO, in particular the deferral of reinforcement. £94 million of investment was not included in our ED2 plan as it could be deferred out of the price control by using flexibility. Investment deferral is currently our primary use case for flexibility and will continue to be an important tool to deliver our ED2 plan. However, flexibility is also used to help manage network risk whilst assets are built. These use cases are classified as “reinforce with flexibility” in our DNOA. Closer to real time flexibility can also be used to manage planned and unplanned outages. As we continue in ED2, and into ED3, we expect the use cases for flexibility to evolve, to make the most of the network as built, whilst supporting an optimised network build plan. Flexibility will shift from focussing on deferring investment, to accelerating the connection of new low carbon assets, maximising their access to the networks and managing the operational needs of the network.

Example use cases include the use of flexibility to:

- To deliver capacity alongside build (increasing total capacity released).

- To deliver capacity ahead of network build (accelerating connections).
- Managing build timing risks (where build takes longer than planned).
- To accommodate changes to capacity requirements (new connections), with limited impact on the build program.
- To allow more efficient build options (managing load whilst a longer, but more strategic build option is delivered).
- As an enduring solution for managing a constraint where build is not economically.

We see flexibility becomes a tool to allow for the release of optimised capacity around an optimised build program, rather than be seen as a direct competitor to building, whilst also becoming an increasingly important tool for system operation.

These changes shouldn't wait till ED3. As more evidence emerges on the value of accelerating capacity and access to the network, Ofgem should explore how such new use cases can be accommodated within ED2, including how additional DNO costs can be recovered where there is a clear whole system benefit. This should cover scenarios where increased flexibility is needed to accelerate decarbonisation, or conversely where building more networks allows for the flexibility to be more optimally utilised across the whole system. As detailed in question 15, DSOs will need to evolve the existing Cost Best Analysis approach which is focussed on deferral to transparently justify these decisions.

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

Key messages:

- The current ED2 process has primarily focused on using flexibility to defer network reinforcement, creating a narrow view that limits the value of flexibility to distribution network cost savings. There is a need to recognise flexibility as a broader system management tool, given the increasing number of connected devices that can provide system-wide benefits.
- ED3 needs a scalable whole system CBA to value trade-offs, including flexibility services and connections, with dynamic solutions to address evolving network needs. This should incorporate RESP input for future capacity requirements, clear expectations for connection timings by customer segment, and obligations to manage variability. The outcome should be an optimised LRE delivery plan balancing reinforcement and flexibility for cost-effective capacity delivery.
- Recognising the complexity of the challenge, we emphasise the need for progress over perfection in developing these solutions.

As covered in Q14, we see the use cases for flexibility evolving. As we take a wider view on customer, we will need new CBAs to ensure that we are delivering an optimal whole system.

To date, the ED2 process has focussed the value of flexibility to the distribution network, and within the incentives of the price control. This has created a relatively narrow value lens through which to consider the use of flexibility, with a clear incentive to defer reinforcement. To ensure the consumers' long-term interest are considered, we need to broaden the assessment of both the costs and benefits of flex, whilst creating a regulatory framework to encourage this. As such we need to:

- Better understand the costs of build uncertainty. Whilst flexibility can be used to defer network investment, this can be counterproductive, where it increases uncertainty of

when an asset might be built, resulting in delivery and supply chain risk. In addition, with material costs increasing above inflation, it potentially increases costs in real terms.

- Better understand and coordinate the whole system impacts of our actions. There is a trade-off between the benefits and costs. The benefits include accelerating the connection of low carbon, low-cost generation which reduces wholesale market energy costs and carbon intensity of the system and releasing the flexibility on our network to provide value where it is greatest.

To do this we need:

- A robust, but scalable, whole system CBA to aid with the valuation of these trade-offs. This includes both flexibility services, and also flexible connections. This may require dynamic solutions to primacy, acknowledging these trade-offs are not static.
- Input from RESP to help us develop robust views on the network capacity requirements out into the future
- A forecast of connections timings by customer segment, a view on the potential variability around this forecast.

With these enablers, we can deliver an optimised LRE delivery plan, valuing both reinforcement and flexibility to deliver the right capacity in the right places, in a cost-effective manner.

These concepts are complex and so acknowledge the need for progress over perfection. We cannot wait for perfect CBAs but should instead iterate, improving as we build understanding and learning.

Our CVF proposal (Annex 2) provides a roadmap on where and how the concept of quantifying consumer value can be broadened and enhanced to aid the decision-making process. These forms of consumer value measurement can be complementary to traditional CBAs to ensure investment is targeted and timely in nature whilst also ensuring the measures of success employed act as a tool to evidence delivery and hold DNO's to account for their successful implementation. This tool can help ensure network flexibility is only used when it is in consumers long-term interests and provides an appropriate evidence base which can demonstrate how and why the investment decision as arrived at.

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

Key messages:

- Unexpected load growth is primarily driven by new connections, especially due to unrealistic load assumptions from customers, leading to delays or curtailed offers for HV and above connections. Constraints from general load growth are managed through network topology changes, asset risk acceptance, and operational mitigations.
- To address unexpected constraints, particularly from new connections, proactive coordination between planning and system operations is essential. Flexibility, as a broader system management tool, could help accelerate connections and manage constraints, but any increased costs to consumers should be evaluated through a comprehensive CBA, supported by market design that encourages wider participation from flexibility providers.

General load growth constraints are usually detected within our planning activities; it is rare for these to be unexpected. When this does occur, these can be minimised through network topology changes, asset risk acceptance and other operational mitigations.

Unexpected constraints from new connections are more common and can be exacerbated by inaccurate or unrealistic load assumptions provided by customers. These situations often necessitate reinforcement works, potentially extending connection timescales. For high-voltage and above connections, flexible (curtailed) offers are increasingly accepted to mitigate delays, while low-voltage (e.g. small-scale domestic LCT connections) are rarely impacted and are typically connected without restriction.

Where generators accept flexible (curtailed) connection offers, this can reduce the volume of clean generation exported to the GB system. Capability within System Operations can seek to reduce curtailment levels within operational timeframes by using advanced modelling techniques to better under network risk; while this can improve curtailment outcomes, it also increases system operation complexity.

Within ED3 it will be important to ensure the coordination of planning activities to reduce the likelihood of unexpected constraints and their impact on customers. The role of system operations will become increasingly crucial both in reducing the impact to generation customers and the operation of flexibility under known constraints. Addressing constraints proactively will ensure that networks support the timely connection of LCTs and maintain system reliability while delivering whole-system benefits.

Where connections are the driver of constraints, incentives that deliver outcomes aligned with customer expectations could be developed. There are potential use cases for flexibility to accelerate the connection process where known constraints exist. And similarly, this could be applied to address unexpected constraints in operational timeframes, using flexibility as a broader system management tool. However, as this wider flex procurement could increase the end cost to the consumer, a CBA process would need to be developed.

Furthermore, this will require Market design that stimulates wider market participation that is attractive to flexible providers whilst delivering value across the system.

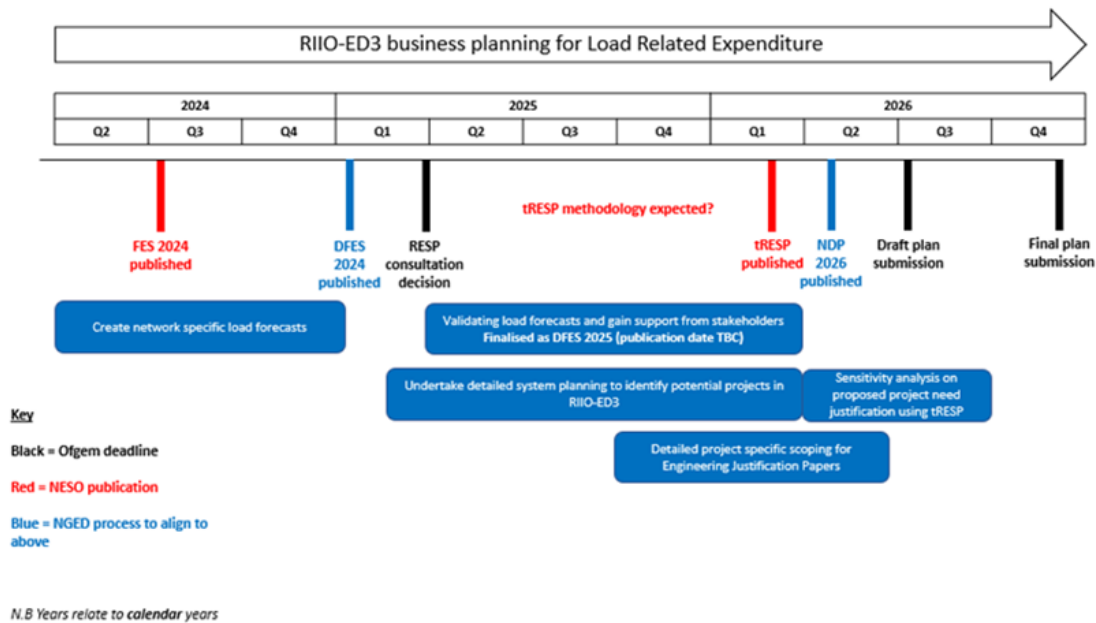
Q17. Do you agree that the tRESP output outlined for early 2026 will help create a level playing field for DNOs' business planning and support the ED3 objective and consumer outcomes?

Key messages:

- The tRESP can remove uncertainty and subjectivity of planning inputs and it can help drive consistency in the approaches taken by DNOs to develop their plans, but it won't be available in time to form the basis of the ED3 load-related investment plan. We plan to use the DFES 2024 dataset for our load related plan, with tRESP incorporated later.
- NESO can add most value to the ED3 planning process by providing a consistent methodology and by ensuring that any proposed investments have adequately considered in the whole energy system in their justification of need. A collaborative approach with NESO will be critical for a successful tRESP.

Notwithstanding the fact that the RESP framework decision is still pending, we do believe that the RESP output can help aid certainty and remove a level of subjectivity of planning inputs; it can also help drive consistency in the approaches taken by DNOs to develop their plans. It is important, however, to note that due to the timing of the transitional RESP (tRESP) output, it will not be

available in sufficient time to be the starting point for our load related investment plan for ED3. As a result, we will initially build our load-related investment plan using the Distribution Future Energy Scenarios (DFES) 2024 dataset as the input.



Whilst undertaking the detailed network planning, throughout 2025 we will engage extensively with our stakeholders and NESO to shape the tRESP. Throughout 2026 we will undertake sensitivity analysis using tRESP outputs to demonstrate alignment for all investments proposed in the ED3 plan, and work with NESO for those that can benefit from additional assurances we believe NESO can provide.

We appreciate the additional information provided in the recent RESP detailed design workshops on how tRESP will be used. We believe that the approach presented is pragmatic and provides the level of detail to enable DNOs to identify of the load related investment and specific solutions required to meet consumers’ needs.

We believe that Ofgem should provide guidance on how to undertake the sensitivity analysis and best demonstrate alignment to tRESP for specific investments.

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?

Key messages:

- Anticipatory network reinforcement should focus on aligning network capacity with long-term net zero goals, allowing DNOs to plan more strategically and provide greater certainty to the sector and supply chain.
- Mechanisms to support long-term planning and anticipatory investment are welcomed, as they would help balance the risk of uneconomic capacity increases with the need to avoid network constraints and support a timely transition to net zero.

Anticipatory network reinforcement should aim to provide network capacity increases in line with a forecast trajectory that enables the UK to meet longer-term net-zero goals, instead of a primary focus on shorter-term network alignment with observed load. The benefits of the Green Recovery Scheme, which could be seen as strategic investment of this nature, show the value to customers and achieving wider net zero ambitions.

The nature of this longer-term focus can allow DNO's to take a more strategic approach to network build out, planning capacity increases more effectively over a longer time horizon. This view of network build requirements over a longer time horizon can provide greater certainty to the sector and the wider supply chain, enabling investment in capacity and the associated workforce of the future.

We are on track to deliver network reinforcements required in the ED2 period with our current workforce capacity with contractor involvement. We would welcome anticipatory investment mechanisms that supports long-term planning to increase delivery capacity required for Clean Power 2030 and net zero by 2050, noting that this needs to consider all voltage levels to ensure customers get the full benefit of this strategic investment. The risk from potential investment in uneconomic capacity increases is traded off with the loss of consumer value from network constraint costs and the negative impacts of being unable to support a timely transition to net-zero. We believe this risk can be managed through appropriately designed regulatory scrutiny that monitors the progress of anticipatory investment schemes. We would be happy to support further work on how Ofgem can set the regulatory framework to support decision making which can consider delivering capacity in a timely manner, avoiding pinch points and wider trade-offs.

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?

Key messages:

- Investment planning should account for long-term needs and whole-life costs, including thermal losses, and apply to all new assets, whether load or condition-driven. A strategic approach is needed to balance high-confidence forecasts e.g. electrification with uncertain factors e.g. higher voltage network connections to minimise interventions and ensure efficient use of resources.
- Long-term asset planning must consider factors such as climate change impacts, including rising temperatures and extreme weather events. Sizing assets for resilience and future capacity needs will help reduce risks to asset life and ensure the network supports net zero goals with minimal disruption to consumers.

We agree that investment planning and optioneering should aim to reduce whole-life costs and, therefore, minimise the impact of new investments on consumer bills. We further agree that this should include consideration of thermal losses.

It should be noted that the incorporation of long-term needs into investment optioneering should apply to all new assets, regardless of whether the installation is condition driven or load driven. This means that the regulatory framework around NARM and Load Related Expenditure needs to reflect this.

When considering long-term needs, a number of factors will need to be taken into account such as the voltage of the network in question – the needs of lower voltage networks will be more driven by changing consumer behaviours than higher voltage networks which will need to accommodate larger, commercial connections (generation and demand). Higher voltage networks are also designed for higher levels of system security.

Levels of confidence will also differ when it comes to assessing long term need: the decarbonisation path to a net zero 2050 will mean that electrification of domestic heat and transport (EV charging), for example, will occur with a very high-level confidence whereas there may be lower levels of confidence in the locations (and lifespans) of connections to the higher voltage networks.

These factors will need to be taken into consideration when sizing elements of works to be undertaken – for example, where high levels of confidence exist in future load growth, the lowest whole-life cost might involve sizing all elements of works for the future load. Where lower levels of confidence exist, or where whole-life cost analysis indicates a benefit, only some elements of works might be sized for the longer-term. An example of this scenario might be installing a transformer for the high confidence element of forecast load growth, but sizing the civil works for a larger transformer to facilitate future upgrades should lower probability scenarios occur. Again, whole-life costing will determine the solution with the maximum value.

Key to keeping whole-life costs to a minimum will be avoiding multiple interventions on the network where possible. The significant increases in capacity required to meet the demands of net zero will mean large-scale programmes of work will be required. Avoiding multiple interventions on the same assets over their normal anticipated life allows resources such as manpower and equipment to be used more efficiently.

Fewer interventions will also reduce the frequency and extent of outages on the network and associated disturbances to consumers. Achieving net zero for 2050 will depend heavily on consumer willingness to adopt LCTs, and frequent disruptions from streetworks and interruptions to supplies risks reducing that willingness. Additionally, consumers who have already made the switch to heat pumps and EVs will, as a result, see an increased dependence on a reliable supply. The impact of supply interruptions is therefore likely to increase, reinforcing the need to keep interventions to a minimum.

By considering the impact of thermal losses as part of long-term needs, further efficiencies can be realised. While losses on a fully decarbonised grid may not have a direct impact on emissions, there remain the inefficiencies associated with providing the necessary generation to make up for those losses. Lower levels of losses will mean less renewable energy wasted.

With assets typically having normal lives in excess of 40 years, and with just 26 years to go to 2050, long-term asset needs should also consider the impact of climate change. All assets are subject to the risk of reduced power-carrying capacity by increases in average ambient temperatures. Where supported by modelling, sizing assets in anticipation of potential long-term capacity reductions as well as long-term increased utilisation needs will provide further resilience and reduce the risk of shortened asset life.

As well as increases in ambient temperatures, climate change is also predicted to result in more frequent severe weather events, such as storms and flooding. In some cases, therefore, there may be a long-term benefit in sizing works for physical resilience, rather than for capacity requirements alone.

Q20. Is a 5-year price control (2028-33) the right duration to achieve the objective of securing timely network capacity for the net zero transition at least cost to consumers over the long run?

Key messages:

- The price control duration should ensure financeability over the long-term, boosting investor and supplier confidence, and reducing supply chain and labour constraints, while also reducing consumer costs. However, flexibility to adapt to changes in circumstances is crucial. This long-term perspective should inform investment decisions, ensuring they contribute to net-zero targets and support economic growth, balanced regional development, and financeability.
- A longer price control duration should be considered to enhance investor and supplier confidence, enable more advanced network planning, and mitigate supply chain and labour constraints. However, this should be accompanied by robust financeability evaluations and the continued use of uncertainty mechanisms to allow for responsive adjustments as needed.

It will be of the utmost importance that any decisions made for the ED3 Price Control are made with the long-term objective of achieving the goal of net zero by 2050, irrespective of the duration of the control itself. The ED3 regulatory framework needs to be an enabler of this future and anchored in long-term planning to inform and assure future investment needs.

A strategic, longer-term view of network development is essential to meet net zero targets and deliver lasting consumer value, requiring decisions and mechanisms within ED3 to ensure that they

deliver a positive contribution at this juncture of the transition and beyond. ED3 will represent the first 5-year period of a 20-year investment programme and should be undertaken with that in mind. These considerations should be factored into the framework, ensuring we maintain our 2050 net zero trajectory, investments are suitably forward-looking, and the mechanisms and funding routes which underpin these investments are aligned to that position. This long-term view of requirement is as applicable to financeability. ED3 needs to recognise financeability is also a long-term concept, the longer-term approach of ED3 being a regulatory snapshot within a longer-term trajectory.

The price control should be viewed as part of a long-term ecosystem, with Ofgem's duties extending to both current and future customers. This requires a longer-term perspective that supports net zero, economic growth, balanced regional development and a financeable framework beyond a single price control cycle.

We remain open to the consideration of a longer price control duration to facilitate increased investor and supplier confidence, and to enable a greater level of advanced network development planning and delivery and therefore, more opportunity to mitigate supply chain and labour constraints and optimise overall consumer costs.

Overall, consumer costs could be affected by a number of price control parameters in a longer-term price control duration, and we have outlined several considerations in Q47 with regards to asset lives.

Any consideration of a longer price control duration should also include a robust evaluation of financeability and the associated metrics over both the short and longer term, to avoid any risk of negative investor reaction.

As well as supporting this consideration, we also support the continued use of mechanisms, such as, uncertainty mechanisms in a longer price control duration to enable responsive adjustments to development plans.

Q21. To what extent should the price control be more directive on specific anticipatory and strategic investments to achieve the 'networks for net zero' consumer outcome?

Key messages:

- The price control should be the key facilitator of anticipatory and strategic investments, but this does not necessarily require being overly directive or prescriptive. We believe incentives have been a successful way to deliver investment in a way that aligns with consumer outcomes, promoting innovation and flexibility to meet evolving needs.
- The DSOs translation of the RESP's outputs should ensure value for money, and consider differences between regional networks, mitigate the risk of worst served customers being left behind. The ED3 price control should support a balanced approach, avoiding one-size-fits-all solutions, and incentivising DNOs to provide clear justifications for innovative solutions that meet net zero targets and deliver customer value.

DNOs must strike an appropriate balance between regionally directed strategic investment and the ability to adjust plans based on NESO's Future Energy Pathways and RESP outputs, without being solely driven by them. The framework should avoid being overly input-led or excessively prescriptive in defining outputs, as this can stifle innovation. Instead, it must be flexible enough to adapt to evolving inputs and requirements, leveraging scalable and adaptable mechanisms. It should focus

on achieving the desired outcomes rather than prescribing specific solutions as this approach better fosters innovation and the adoption of the latest technologies.

Each licence area has unique characteristics that require differentiated approaches. Networks may legitimately move at a different pace, shaped and influenced by regional ambitions and RESPs, and prioritise different solutions to address their unique challenges (volume and type of new connections; current headroom; transmission level interaction; asset age, type and condition etc.). A consumer centric approach is essential and is best achieved through output- and incentive-based regulation, prioritising key consumer values and ensuring networks are motivated to focus on outcomes and development of innovative approaches to deliver value rather than input-driven regulation.

This approach ensures the framework remains responsive to changing requirements and pliable enough to flex with the inevitable adaptations (e.g. Government policy and NESO driven plans) that will be necessary to keep on track with the trajectory of the energy transition.

The price control should be the key facilitator of anticipatory and strategic investments and the DSO's translation of the RESP's outputs, into a development plan that achieves net zero targets, should ensure value for money, whilst also considering differences between regional networks and mitigating the risk of worst served customers being left behind.

DSOs and DNOs will be required to consider the unique characteristics of their networks as they progress their decarbonisation development plans. Different volumes and types of new connections, levels of current headroom, interactions at transmission level, ASTI developments, and the age and condition of current regional networks will require evaluation ahead of informing regional development plans, and as such balance will be required in the ED3 price control around levels of direction as taking a one size fits all approach and directing specific investments may not optimise overall consumer value.

Past experience has shown that the innovation and incentives elements of the RIIO framework have been successful at moving the industry forwards and as such Ofgem may wish to consider the development of an ED3 incentive package that takes a forward looking view of the overall aims of net zero, climate adoption, reliability, losses and innovation mechanisms that encourage DNO's to provide clear justification for new solutions and their associated benefits, recognising local customer needs and geographical differences.

Q22. Do you agree with our characterisation of strategic and anticipatory investment and our expectation that these activities would have different regulatory drivers and controls?

Key messages:

- Strategic and anticipatory investment is an important part of the ED3 control, which is required alongside mechanisms to enable effective and efficient delivery of network health investment. Drivers of these investments are different and merit proportionate approaches.
- Regulatory controls on strategic investment should be flexible to allow for the most effective and innovative solutions, avoiding overly restrictive measures like ring-fencing or PCDs that could reduce efficiency incentives. Controls should apply only to critical investments and should bridge between price control periods to ensure continuity in delivering net zero objectives.

We consider that the key characterisation of strategic and anticipatory investments, in the context of ED3, is their objective of facilitating net zero on the network.

Paragraph 6.36 of the consultation defines strategic investment as a large bespoke projects or network-wide programmes of smaller upgrades. Consistent with the above, we think a more appropriate characterisation for strategic investment is any investment undertaken for the long-term delivery of net zero networks.

In the same paragraph, anticipatory investment is defined as an investment in the distribution network ahead of uncertain need. We agree with this definition but, as above, would add that such investment must be related to facilitating net zero on the network. (Anticipatory investments are specific types of strategic investments, where the investment is undertaken ahead of uncertain need.)

Such strategic investments would naturally have different regulatory drivers and controls. In the past load-related investment was driven mainly by business-as-usual demand growth – whose underlying driver is population growth, and by growth in decentralised energy resources (DER) on the distribution network – in contrast, at ED3, the balance is expected to shift towards demand growth – whose underlying driver is the government's commitment to net zero by 2050 and a step change in DER connections. The drivers of strategic investments will be linked to long-term objectives and may progress at different paces in different regions, depending on the regional pace of transition to net zero.

In terms of controls on such investment, we consider that any controls, whether ring-fencing or PCDs, must provide sufficient flexibility to ensure DNOs can implement the most effective and innovative solution while delivering the high-level output the investment intended to deliver. Given that tightly controlled investments weaken efficiency incentives (e.g. ring-fencing, PCDs, or use-it-or-lose-it), the threshold for such controls should be high such that it applies only to highly critical and separable investments to deliver net zero. There is also an opportunity for these controls to bridge between future price controls to ensure continuity of delivery and that there is no momentum lost between price control periods.

Q23. Should the price control provide more guidance or guardrails around the use of particular network solutions to achieve the 'networks for net zero' consumer outcome?

Key messages:

- There needs to be sufficient flexibility to deliver the right outcomes and not stifle innovation. For example, short-term solutions, like flexibility, may be needed initially to benefit consumers, followed by longer-term investments to ensure sustainable network solutions.
- Whilst guardrails may help guide decisions, overly prescriptive criteria should be avoided, as they could limit innovation. Instead, mechanisms that encourage DNOs to justify new solutions, considering local needs and regional differences, would be more effective in fostering innovation and deployment of new technologies.

DNOs hold the expertise to develop and deliver new network solutions. The space to innovate will be crucial to developing and delivering new solutions in the ED3 period and beyond, as consumers increasingly come to depend on electricity distribution networks in new areas of their lives as part of the transition to net zero.

Facilitation between DNOs, the sector, and wider industry to share best practice and new technologies would be welcome, as would be guidance that helps remove barriers to deploying new

solutions. Balance is required within the new price control around the provision of guardrails, as creating criteria to support specific solutions may favour certain technologies and may slow down innovation as a whole. Instead of guardrails, Ofgem may wish to consider mechanisms that encourage DNOs to provide clear justification for new solutions and their associated benefits, recognising local customer needs and geographical differences.

Guardrails will become more important as the RESP considers a more definitive pathway, with greater clarity provided on key policy decisions such as domestic heat and transportation. With a longer-term and more certain strategic pathway, this could give additional guidance to inform how DNOs undertake cost benefit analysis when appraising network solution options as part of an investment plan.

Q24. Should we consider how we might bring all network capex investment together within the framework, irrespective of driver (e.g. load, asset health, resilience), to ensure a common approach to future proofing and delivery?

Key messages:

- A narrow focus may overlook customer benefits such as a just transition, resilient and reliable networks, and minimisation of network losses.
- There are risks and benefits to a combined capex mechanism, which need to be carefully considered to ensure it delivers the right outcomes for customers while balancing flexibility, innovation, and long-term objectives.

Government policy is driving a clear medium- and longer-term trajectory of investment through Clean Power 2030 and our legally binding longer-term net zero targets by 2050. To deliver against these ambitious commitments, at least overall cost to customers, will require new assessment mechanisms which take into account all drivers to network investment in a proportional way. To facilitate this, we believe it is critical that Ofgem recognises that it is no longer appropriate for network companies to make investment decisions based on lowest cost/lowest unit cost benchmarking.

If a suitable, combined capex mechanism could be designed (which goes beyond monetary assessment, suitably weights drivers, and takes into account regional differences), in principle, we would support bringing all network capex investment together. However, such a mechanism would present both opportunities/benefits and risks/limitations for network companies and customers that would need to be carefully considered.

Benefits and Opportunities: A common approach to future proofing and delivery would:

- Facilitate the move away from decision making based on cost to deliver today and current network requirements.
- Ensures drivers of investment are considered proportionally, taking into account whole life monetary value, network performance, network risk, customer benefit, and future proofing.
- Allow Ofgem to calibrate parameters relating to driver to meet objectives (e.g. losses, carbon intensity, etc.).
- Provides a means of ensuring a just transition for all.

Risks and Limitations: Development of a common approach may pose multiple risks and exacerbate existing risks and limitations:

- It will be extremely difficult to ensure drivers are proportional when the means to monitoring risks are at variable stages of maturity (e.g. climate resilience). The evolving nature of research in these areas means that the mechanism too would need to be dynamic in nature to allow for in-price control development.
- Taking a single view on capital investment needs to give network companies the flexibility to deliver the right outcome for customers. If the mechanism becomes overly bureaucratic it has the potential to stifle the right outcome for customers.
- We need to make long-term, strategic decisions based on the best currently available data. A rigid mechanism would block network companies from operating in an agile manner, deliver optimal outcomes for customers, or provide a level of certainty to avoid exacerbating supply chain risks.

Responsible Business

Q25. How can we better strengthen accountability for consumer outcomes?

Key messages:

- ED3 should seek to bring together those metrics which focus on customer value, commercial efficiency, and customer satisfaction as these are not mutually exclusive but in actuality mutually supportive. We are supportive of operational and outcome metrics which are objective and based on evidence with a reduced reliance on the subjectivity which comes from such surveys.
- We believe the CVF proposal shared with Ofgem is a basis on which not only can consumer value be identified and delivered against, but also a framework that promotes the quantification and metrification of the value delivered which will better strengthen accountability and improve transparency for Ofgem and the broader stakeholder community. This framework can be utilised by Ofgem to demonstrate the broader value to consumers that its framework delivers and hold networks to account on their proposals to deliver and unlock consumer value.
- Our CVF architecture sets out for consideration a process and roadmap for establishing any consumer value gaps by assessing the core issues affecting consumers, which consumers are impacted and what potential shortfalls exists in the current regulatory mechanisms as well as what issues may further exacerbate the problem.

To strengthen accountability for delivering customer outcomes, a multi-faceted approach that integrates transparency, measurable targets, stakeholder engagement, and regulatory oversight will be required. This will ensure transparency, foster trust, and drive measurable improvements in customer outcomes.

We agree and are aligned to the Ofgem consumer outcomes, namely: Networks for Net Zero; Responsible businesses; Resilient and sustainable networks and Smarter Networks. Our work on the Customer Value Framework (previously shared with Ofgem and included as an annex in our response to the ED3 framework consultation) has explored these issues and suggested both how these align to the drivers of change (regional decarbonisation; changing consumer behaviour; social policy imperative and increased reliance on electricity and criticality of resilience) and potential solutions for their measurement.

We believe the CVF proposal shared with Ofgem is a basis on which not only can consumer value be identified and delivered against, but also a framework that promotes the quantification and metrification of the value delivered which will better strengthen accountability and improve transparency for Ofgem and the broader stakeholder community. This framework can be utilised by Ofgem to demonstrate the broader value to consumers that its framework delivers and hold networks to account on their proposals to deliver and unlock consumer value.

Our CVF architecture sets out for consideration a process and roadmap for establishing any consumer value gaps by assessing the core issues affecting consumers, which consumers are impacted and what potential shortfalls exists in the current regulatory mechanisms as well as what issues may further exacerbate the problem.

It subsequently establishes what value is being delivered to consumers and how this can be best measured, recognising that not all benefits are monetised or immediately quantified but best represented by a qualitative assessment using the most appropriate forms of measurement.

This measurement is achieved by mapping the outcomes against the relevant value constructs and the relevant success criteria that illustrates the benefit against each of the relevant customer archetypes. Finally, this is framed against traditional CBA but is bolstered by the metrification of value through the afore-mentioned value constructs (SROI, SEW, Resilience and Value of transition). It is very much aligned with Ofgem's own Consumer Interest Framework and Ofgem's own evolving thinking in relation to Impact Assessment. We have included an additional annex on consideration of Impact Assessment and its alignment to consumer value and consumer outcomes in ED3 as part of our response.

Metrics within ED2 focus separately on the twin pillars of customer value – commercial efficiency and customer satisfaction. There is a risk in doing this that these two items get addressed separately – i.e. enhanced efficiency is delivered at the expense of reduced satisfaction and vice versa. We believe that these two elements should be considered and delivered together. In practice, these are often not mutually exclusive but mutually supportive.

On this basis, we propose KPIs are developed that address:

- **Reassurance:** confidence amongst both customers and potential investors in the reliability and resilience of our networks and the effectiveness with which we communicate and manage interruptions when they occur, ensuring that our customers don't have to think about their electricity supply as part of their day to day lives. This should cover both actual performance and its perception and could include commitment to minimise disruption to consumers through the network upgrade programme through efficiently developing the network as part of a longer-term programme
- **Engagement:** the extent to which we are successfully engaging with both customers and potential investors in helping them understand the opportunities to decarbonise. This includes provision of network capacity data to assist with identification of investment opportunities / challenges, priorities for network reinforcement and potential routes to innovation i.e. building network infrastructure in the right place and at the right time, whilst maintaining quality of service and asset health so that risks are not stored up for the future.
- **Adoption:** the extent to which decarbonisation technologies are adopted on our networks, including the effectiveness with which we manage new connections and improve those already in place
- **Value:** Measurement of value in terms of outputs and outcomes; we have proposed a range of "Value Constructs" which can be used as an effective measurement tool in evaluating consumer value and quantifying and metricising value delivered by DNO's, to extend reporting of DNO performance beyond the current focus on RoRE.

We are very supportive of operational/outcome metrics which are objective and based on evidence/data at key points of the connections process. This takes away the reliance on customer surveys, they would be based on a significantly higher sample size and would take away any bias/subjectivity in the scores. However, we also understand that customer and stakeholder feedback will play a valuable role and still be required to supplement this.

Q26. What are your views on ED company reporting and the overall transparency of performance and compliance?

Key messages:

- Organisational legitimacy, credibility and trust are important for stakeholders, and we acknowledge the measures Ofgem has introduced to drive high performance in these areas.
- We propose a measurement tool for evaluating consumer value and quantifying and metricising value, to extend reporting of DNO performance beyond the current focus on RoRE.

We agree with Ofgem's statement that concepts of organisational legitimacy, credibility and trust are particularly relevant to stakeholders, and we also acknowledge the measures Ofgem has introduced in the ED2 price control framework to drive high performance in these areas.

Ofgem's development of Regulatory Financial Performance Reporting (RFPR) has led the way in terms of transparency of reporting. We note also that the RFPR changes in Ofgem's RII0-3 SSMD for the gas and transmission sectors have already been incorporated for Electricity Distribution companies. We consider the updated reporting requirements on executive pay/remuneration, dividends and corporate governance to be sufficient and appropriate. See our response to question 46 for our detailed response to Ofgem's question on Financial Resilience.

As part of the broader response to the ED3 framework consultation, we are proposing that ED3 better integrates consumer value measurement in the decision-making process, with enhanced measurement of value in terms of outputs and outcomes. We have proposed a range of "Value Constructs" which can be used as an effective measurement tool in evaluating consumer value and quantifying and metricising value delivered by DNO's, to extend reporting of DNO performance beyond the current focus on RoRE.

This framework should ultimately adopt a new and improved approach to measuring value and outcomes for consumers, evaluating trade-offs, and defining a clear consumer value metric to better assess performance in relation to benefits delivered. The introduction of a CVF (see our proposal in Annex 2) can provide additional transparency to stakeholders on network performance and the measurement of value being delivered by the networks. This approach enables Ofgem to consider calibration and trade-offs between policy measures and ensure the incentive package maximises consumer value. This consumer value metric should complement RoRE in terms of yardstick network performance, recognising that higher RoRE may be achievable and acceptable where networks deliver demonstrable & commensurate consumer value.

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?

Key messages:

- Independent Stakeholder Groups (ISGs) play a critical role in providing independent assurance that stakeholder and consumer voices are considered in both the development and delivery of plans. To maximise their value, Ofgem should ensure there are clearly defined roles and scopes for ISGs, using the RIIO-3 Business Plan guidance for transmission and gas as a solid basis. This would help create a structured framework for ISGs to contribute effectively, ensuring robust engagement throughout the ED3 planning process.
- The role of ISGs should be considered alongside the ongoing engagement programmes undertaken by DNOs. Activities for engaging with specific groups like vulnerable consumers and connections customers (attached to relevant incentives) should complement the role of the ISG in ensuring effective and inclusive engagement during the control period.

During the development of our ED2 plans, our Customer Engagement Group (CEG) delivered an important role, challenging our engagement approach to ensure we could deliver the most effective programme. They contributed to us delivering the most comprehensive engagement programme we had ever undertaken, with a golden thread from early priorities through to final commitments. For ED3, we agree with the proposal to require DNOs to appoint ISGs, where they will be able to ensure high quality and effective consumer engagement. The terms of reference described in Chapter 2 of the RIIO-3 Business Plan Guidance provide a solid basis for the approach for ED3, we believe the role and scope of ISGs should be substantially the same.

The role of ISGs should be considered alongside the ongoing engagement programmes undertaken by DNOs, providing Ofgem with further transparency of what DNOs are hearing from their stakeholders, through the independent lens of the ISG, giving ongoing insights which could help Ofgem for further price controls. With this combined approach, we do not believe that alternative approaches are required.

The monitoring of DNO-led engagement programmes, via the ISGs would provide Ofgem a complimentary approach to ensure high quality and effective consumer and stakeholder engagement throughout the ED3 price control. In both the planning and delivery stages of ED3, we will deliver a comprehensive cycle of engagement with a full spectrum of stakeholders. This will include targeted engagement with specific key groups, for example with RESPs and place-based engagement with local stakeholders, ensuring regional strategic plans reflect local ambitions and underrepresented groups. Incentivising engagement with specific groups, e.g. vulnerable customers and connections customers, would drive high quality effective engagement complementing the role of the ISG.

As detailed in our response to questions 28 and 29, the development of deliberative engagement activities across DNOs, and by Ofgem where appropriate, will further enhance the quality and effectiveness of engagement for ED3.

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?

Key messages:

- Deliberative engagement is a valuable tool for capturing the consumer voice, and DNOs should lead this activity to ensure it is integrated early into business plan development. Waiting for centralised feedback from Ofgem could delay the incorporation of insights into planning processes, so DNOs are better positioned to carry out research that aligns with regional needs and timelines. For certain groups, such as vulnerable consumers or businesses, engagement fatigue may arise from multiple DNO requests, so Ofgem may need to lead some research to avoid overburdening them.
- To ensure useful and comparable data, Ofgem should work with DNOs to set clear standards for research and define consistent methodologies, ensuring that insights from regional engagement are integrated into the process without overlooking regional differences.
- We are already engaged in this area and have in place a Consumer Insights Forum covering a full range of demographics, small businesses and future bill payers.

The role of the consumer voice is critical in the development of business plans, and it is, therefore, essential that research and engagement occurs on a timescale which enables DNOs to include results in their plan development, triangulating with other factors in the key decisions which need to be made. We also believe that deliberative engagement is an important tool, empowering consumers to feel able to provide informed feedback and decisions.

Due to the importance, and the need for the timely delivery to support the planning process, we believe that DNOs are best placed to undertake this activity. Waiting for a centralised deliberative research process run by Ofgem to feed back to DNOs, could risk its outputs not being incorporated into our planning early enough to properly inform the process.

However, in order for Ofgem to have useful, comparable and consistent information through this process, we suggest that Ofgem should work with DNOs to set the standards on what research is undertaken and set this out in the Business Plan Guidance. This consistency will ensure all data can be triangulated by Ofgem for their needs and enables a greater scale and scope of research via the DNO's regional activity. One exception to this is that for certain stakeholder groups, fatigue will result if they are separately asked for input from all DNOs. Therefore, we again accept that there may be the need for Ofgem to lead on elements of this work.

Beyond the planning stages, we believe that ongoing deliberative engagement through ED3 will be a useful approach to inform ongoing decisions and service improvements, meaning that delivery can be agile and responsive to the needs and expectations of customers rather than this only being accounted for in a 5-year cycle. We undertook deliberative research in ED2 and have continued with our Consumer Insights Forum (CIF). The CIF is a panel of consumers for a full range of demographics, small businesses, future bill payers. They are taken through context via a range of routes including 'homework' and workshops via an online platform before being asked to feedback on what we need their views on.

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?

Key messages:

- To support vulnerable customers, including those seldom heard or digitally disengaged, we will continue engaging with organisations directly working with these communities, ensuring their voices shape plans.
- In the ED3 preparation period, collaborating with trusted partners will help represent the perspectives of vulnerable customers, with tailored engagement for specific vulnerabilities enhancing representation.
- During ED3 delivery, it will be important for DNOs to be able to identify reach of partnerships and our PSRs into the full range of demographics and geography.

With the acceleration needed to deliver Clean Power 2030 and our net zero targets in ED3, it has never been more important for us to ensure that we support customers in vulnerable situations. With increased reliance on electricity and rapidly changing opportunities presented by the low carbon transition, it is vital that voices in these communities are given the necessary platform to shape our plans and the decisions we make.

As explained in our response to question 27, we believe Ofgem should consider the engagement programmes of DNOs as complimentary to the role of ISGs – providing a clear line of sight to the outcomes of robust engagement and how these have informed DNO planning and delivery. Our ongoing cycle of engagement with stakeholders ensures that our service delivery is kept informed by the needs of our customers. A major element of this is our engagement with organisations working directly with customers in vulnerable situations, including the partners we work with in our support delivery programmes.

In the ED3 preparation period, these organisations will enable the voice of the customer to be in the room. Ensuring that there is robust engagement with partners and organisations that can provide the views of customers through their own trusted knowledge, experience, and expertise, ensures the seldom heard can be represented.

Additionally, the deliberative engagement discussed in question 28, will provide further direct insights, by carrying out engagement tailored to more detailed customer segmentation – ensuring that, for example, specific vulnerabilities are considered.

During ED3 delivery, it will be important for DNOs to be able to identify reach of partnerships and our PSRs into the full range of demographics and geography. This helps to enable targeting further outreach for underserved communities and those in areas with 'worst served' customers. The AVR could be the place where DNOs demonstrate and share their activities in this area, providing opportunities to take up best practice and further collaboration. We believe it is important that Ofgem's approach to enhanced stakeholder engagement will ensure that DNO engagement outcomes can be taken into account by Ofgem in their Draft and Final Determinations. By setting out the need to engage with a broad range of representatives of key stakeholder groups, as per our approach explained above, Ofgem can ensure the inclusion of the perspectives of all vulnerable customers, including those that are seldom heard, digitally disengaged/excluded and those that are worst served. With ISGs providing challenge and scrutiny on the quality and scope of engagement and its use in the development of plans, DNOs will need to clearly demonstrate how engagement has incorporated a comprehensive range of views and been used to make key business plan

decisions. It is vital that this is taken into account by Ofgem in their decisions, to ensure that the needs and preferences of the consumer are put at the centre of ED3.

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

Key messages:

- We support a mixture of qualitative (including deliberative techniques) and quantitative approaches alongside input from key consumer groups (such as Citizens Advice).
- Ofgem should be clear early on the questions it proposes to address and through what methodology to ensure DNOs plan their research projects accordingly. One element that may be insufficiently addressed is an understanding of the evolving behaviours and expectations of different customer segments.

We support a mixture of qualitative (including deliberative techniques) and quantitative approaches alongside input from key consumer groups (e.g. CAB). As mentioned in question 28, the key point will be for Ofgem to be clear on the questions that it proposes to address and through what methodology in order that DNOs can then plan their own research projects accordingly.

One element that may be insufficiently addressed is an understanding of the evolving behaviours and expectations of different customer segments. Clearly, there will be differences between businesses and residential customers but, within these broad categories there are very diverse behaviours and motivations. Understanding these should be an important input to both policy making and DNO planning. Creating, understanding and tracking these segments, including how their behaviours change relative to each other, must be an important initiative. This will be done by individual DNOs but, if it is to have an impact on policy, Ofgem needs to develop and maintain its own view, ideally in consultation with DNOs. Once developed, this can be used to inform further tracking and measurement studies, both as part of the development of ED3 but also in subsequent performance interpretation and review.

Q31. Has the BMCS incentive served its purpose in driving performance improvements and how can we adapt the metrics to better incentivise performance across a wider range of interactions between DNOs and their customers, particularly relating to connections?

Key messages:

- BMCS has driven significant improvements in consumer performance and has now reached diminishing returns. Maintaining current levels of performance takes continued effort.
- On balance we believe that a review of BMCS and its approach is needed whilst accepting there is a continued need for customer feedback which can be folded into a broader consideration as part of the deliberative customer engagement in question 25.

We believe that BMCS has now reached the point of diminishing returns for further increased performance in its current form. As an industry, we are now operating with a performance of 9/10 – something of which we should be proud. It should also be noted that maintaining this level of performance takes continuing effort as customer expectations continue to increase. Therefore, if BMCS continues as a metric, we do not see particular benefit in setting increased levels of

performance. We have a similar view for the complaints metric. Furthermore, we have some concerns about the now rather outmoded research approach adopted by BMCS – i.e. outbound telephone research. The growing ubiquity of consumer surveys across multiple industries is reducing response rates, generally meaning that the representativeness of respondents can be called into question. By the end of ED3, these continuing trends are likely to challenge the validity of this approach. Therefore, on balance, we believe that a review of BMCS and its approach is needed whilst accepting that there is a continuing need for customer feedback. It is likely that the most effective way to derive customer performance information is through detailed analysis of the operational drivers of customer satisfaction – i.e. using data science techniques on a sample of BMCS data matched with operational data to identify the most predictive operational drivers of customer satisfaction and use these as performance metrics. There are challenges with this approach, but they are likely to be less significant than the continuing use of diminishing and unrepresentative research responses. This approach can be used for connections as well as the other aspects of BMCS. More broadly, it is increasingly clear that different groups of customers will have varying needs. Fully understanding and agreeing these segments, their evolving needs and how effectively they are met, will need to be considered as part of ED3 KPIs.

In our response to question 25, we highlighted a number of areas where we believe customer feedback may be needed, reflecting an evolving broader role for DNOs. If this approach is adopted, we believe that BMCS should be folded into a broader consideration of the feedback that we need to collect from both consumers and other stakeholders.

Q32. How should the CVI be adapted for ED3 and should we consider greater alignment with the GD sector?

Key messages:

- The CVI is already driving significant positive benefits for some of the most vulnerable customers across the UK. With the acceleration to net zero, in ED3 it will be more important than ever that we use our role as trusted energy providers to support our customers in vulnerable situations to benefit in the energy transition. The reach of the PSR could be 90% + by the end of ED2, we therefore think that incentivising PSR reach during ED3 may not drive the most efficient outcomes for consumers.
- We believe the PSR reach target should be replaced with a metric which measures the quality of PSR information and data capture and the Fuel Poverty and LCT targets in the CVI should be combined. To encourage innovation, particularly in LCT support delivery, the CVI should incorporate an element of innovation funding.

Through the implementation for the CVI in ED2, Ofgem have been able to establish a set of baseline expectations for DNOs in the delivery of support for vulnerable customers. ED3 represents an opportunity to embed the positive benefits already being driven by the CVI and use ED2 delivery as a basis to increase the scale of support and standardise through benchmarking.

At our series of stakeholder workshops in October and November 2024, on the provision of support for vulnerable customers in fuel poverty and in the low carbon transition, stakeholders were clear that there is a need for increased scale of support and that DNOs are well placed to coordinate and deliver more consistent and standardised support.

The use of social value modelling in the CVI targets for both Fuel Poverty and LCTs will provide detailed information of the range of services being delivered across companies. This information, combined with CSAT, can be used to understand where there is best practice and what is delivering robust positive impact for customers. For ED3, this should provide the ability to establish a minimum baseline of delivery for Fuel Poverty and LCTs and give confidence to increase funding and incentives to deliver high volumes, supporting even more customers in ED3.

Based on current trends across DNOs, the reach of the PSR could be close to 90% or higher in the UK by the end of ED2. We therefore think that incentivising PSR reach during ED3 may not drive the most efficient outcomes for consumers. Instead, we believe the PSR reach target should be replaced with a metric which measures the quality of PSR information and data capture. The quality of data on the PSR is vital in ensuring support can be provided as quickly and effectively to those most in need. However, there are challenges brought about through the sharing PSR of information between companies, in terms of ensuring the most up to date information is prioritised. Therefore, incentivising quality of PSR data will drive better outcomes for customers through the increased contact this will require.

Through our activity in the lead up to ED2 and in the first year of delivery, we are already seeing that the delivery of Low Carbon Transition support services to customers has a strong link to the delivery of Fuel poverty Support services. It is often the case, in our experience of delivering these support scheme, through trusted partner agencies, that the delivery of Fuel Poverty support, provides the lead into LCT topics. After supporting customers with their immediate needs, often when they are at crisis point, this can then lead into tailored and appropriate LCT advice giving longer-term positive outcomes. At our recent workshops, customer vulnerability stakeholders emphasised that integrating smart energy into advice as a crucial element of helping customers navigate the transition. Due to the increasing convergence of these services, which we expect will only increase over ED2, we believe the Fuel Poverty and LCT targets in the CVI should be combined.

A drawback of the ED2 CVI has been the challenge of trialling new and innovative approaches for LCT services, whilst targeting a positive Net Present Value (NPV) in the social value measurement. Whilst our one-to-one LCT support schemes do deliver positive benefits to customers, early setup costs and time to establish the most effective approaches, often mean that NPVs can be negative (despite there being a gross value for customers). We think that maintaining this in ED3 could stifle innovation and drive behaviour to 'play safe' with schemes known to deliver value. Ofgem can encourage innovation, particularly in LCT support delivery, by incorporating an element of innovation funding into the CVI, similar to the VCMA in Gas. This approach would work in combination with the combined Fuel Poverty/LCT target mentioned above, driving innovation enabling successful schemes to be shared and embedded into the delivery of the Fuel Poverty/LCT target.

In terms of greater alignment with Gas Distribution, there will be a greater reliance on electricity for a larger number of customers in ED3. Because of this, it will be more important than ever that we can deliver support to our PSR customers when power cuts occur, particularly in major outages such as those caused in severe weather. Alignment with gas in terms of standards for the delivery of prescribed support, could ensure customers have better understanding and transparency on the level of support they will receive regardless of which DNO region they are in. Ofgem could ensure standardised support through established baseline requirements, which would facilitate a consistent level of service. Enhancements could take the form of standard provision of welfare items to customers, to larger scale support such as generators or battery back-ups. We think this service should be incentivised separately and sit outside of the CVI but will require sufficient funding to deliver a standard obligation. In ED2 the satisfaction of PSR customers is being reported as a sub-

section of the BMCS – for ED3 this can be used by Ofgem to ensure the delivery of support to PSR customers in power cuts can be monitored.

Q33. Should DNOs have a role in delivering energy efficiency measures to homes and businesses? What might the scope of these services be and how should they be funded?

Key messages:

- We are continuing to explore with stakeholders what our role should be in energy efficiency, cognisant of the need to coordinate across a number of stakeholders and energy efficiency delivery schemes and partners.

We recognise the impact of energy efficiency on the network and the significant benefits to the whole system of furthering energy efficiency. We are continuing to explore with stakeholders what our role should be in energy efficiency, cognisant of the need to coordinate across a number of stakeholders and energy efficiency delivery schemes and partners.

There is a potential option for DNOs to provide benefits on top of an 'installation and move on' approach. For example, from our experience in our fuel poverty support programmes and from engagement with our expert partners, there is a significant opportunity to bridge the gap in support to go alongside energy efficiency measures using the installation as an opportunity to provide holistic advice.

Q34. How can we drive further service improvements under the TTC incentive?

Key messages:

- The TTC incentive has been a useful tool to ensure that we are delivering to our customer's needs. Going forward, we need to ensure that the TTC incentive is also driving the right behaviours and outcomes for the customer.
- ED3 Connections incentives, including the TTC, should enable customers to be connected in a timescale which suits them, consistent with their need. We have set out a number of enhancements in the main body of our response to this question.

The current TTC incentive focuses on completing works within timescales derived from historical averages and a quantitative understanding of good performance. However, these averages often fail to align with the specific needs of customers. To improve the effectiveness of TTC, we propose the following enhancements:

1. **Customer-Centric Approach:** TTC should focus on the ability of DNOs to meet customers' requirements regarding when work needs to be carried out; alignment timescales to dates driven by customers versus arbitrary timescales. This must be balanced with the need for added clarity and standardisation of customer journeys and product offerings across all DNOs to ensure consistency and clarity.
2. **Improved Clarity on Exceptions:** Conditions under which the TTC clock can be paused to provide clarity on the condition and scenarios that are applicable, such as:
 - Delays due to planning or consent processes.

- Customer readiness issues.
- Restrictions imposed by street-works regulations and local authorities.

A simplified "stop-and-start clock" mechanism/process should be introduced to account for these uncontrollable factors transparently.

3. **Consistency Across Networks:** We support the application of TTC, in its improved form following the E2E Incentives Review, to DNOs, IDNOs and ICPs. This ensures uniform treatment for all customers, regardless of the network to which they are connected.
4. **Focus on Quality:** TTC must incorporate a focus on the quality of services delivered, not merely adherence to timelines.
5. **KPIs:** Broader KPIs should be introduced to measure performance. These should include metrics that evaluate the experience of customers, ensuring a holistic understanding of service quality during the delivery of the connection.

Q35. Should the TTC also apply to domestic connection upgrades i.e. fuse/cutout/service cable upgrades, including unlooping?

Key messages:

- The introduction of TTC to this type of connections segments would need to be substantiated by data.
- Any changes should be consistent with the improvements noted on response to question 34 and the outcomes of the E2E Incentives Review.

Position on TTC for Domestic Connection Upgrades

We would not oppose the introduction of a TTC metric for domestic connection upgrades, provided the following conditions are met:

1. **Problem statement overview:** The introduction of TTC to this type of connections segments must be substantiated by data demonstrating that DNOs are unable to meet customer expectations effectively or demonstrate areas of underperformance.
2. **Alignment with E2E Incentives Review:** Any changes should be consistent with the improvements noted on response to question 34 and the outcomes of the E2E Incentives Review. This ensures that TTC:
 - Accounts for the diversity of customer journeys, along with their specific needs and associated timescales, thus enabling measurement of metrics that are relevant for each individual customer.
 - Incorporates measures to enhance the quality of submissions, including setting minimum requirements and ensuring a consistent approach to digital journeys across all DNOs.
3. **Extended Contestability:** To support increased customer choice, contestability should be extended to these connection segments. This would further enhance the role of ICPs, whose presence in the market has expanded significantly during the RIIO regulatory period.

Q36. What is the best approach towards incentivising services to major connections customers and how should the MCI be adapted for ED3?

Key messages:

- Major connections customers have a journey that is far lengthier than domestic and smaller customers. Currently, the incentive is quantitative and only applies to two points within the connections journey: Receipt of a quote and Connection. This will not adequately reflect the full customer experience nor incentivise a quality customer experience throughout the project lifecycle.
- There are a number of improvements which can be made to the Major Connections process including licence timescales, a tailored approach, and provision for opt out flexibility. It is also important application quality is enhanced.
- To aid driving improved customer service and a higher quality of connection, an upside to the Major Connections Incentive (MCI) could be included. The incentive could apply to further 'trigger' points within the overall E2E connections journey with details set out in our main question response. Given the growth in the IDNO and ICP sector, the MCI should also apply consistently to ICPs and IDNOs to ensure that consumer value is driven throughout the overall connections process.

Major connections customers have a journey that is far lengthier than domestic and smaller customers. Currently, the incentive is quantitative and only applies to two points within the connections journey: Receipt of a quote and Connection. This does not adequately reflect the full customer experience nor incentivise a high-quality customer experience throughout the project lifecycle. Therefore, we believe that the following are key aspects to consider as Ofgem looks to enable improvements to MCI in ED3.

1. Complexity in Major Connections Framework is Growing

Major Connections Customers encompass a diverse range of connection types and associated customer journeys. However, the current approach to the framework for developing connection offers is singular and does not adequately reflect this growing complexity, which, in turn, continues to evolve with the diversification of available technologies and solutions.

2. End-to-End Incentives Review as a Gateway

The End-to-End (E2E) Incentives Review should facilitate a comprehensive evaluation of the existing quantitative, narrow customer engagement metrics used for MCI to enable a transition towards quality-focused, E2E journey-centric incentives that prioritise key engagement milestones during the lifecycle of the project to promote a comprehensive, positive customer connections experience.

- a. **Resource Implications:** Proposed changes to enhance E2E connections process and the service provision in line with the expectations set on the E2E Review may drive the need for additional resources and further IT investment, i.e. introduction of new roles such as Account Management, increase of Project Management capability and development of new platforms to digitalise Customer Journey. This would likely increase funding requirements for ED3, impacting the overall value proposition for consumers and customers.

3. Improvements in Major Connections processes

We support the introduction of standardisation of key journey moments/milestones in the major connections process, from pre-application to energisation however this must be done by carrying out a review of Licence Condition obligations, such as LC12. This review, must be approached with consideration of the following:

- a. **Licence Timescales:** Current licensed timescales (LC12 65 working days) limit the ability for DNOs to enhance the quality of offers, i.e. solution optioneering, detailed design development, feasibility studies and engagement with delivery partners. These types of additional activities are key enablers for the introduction of contractually binding milestone-driven programs. Existing licenced timescales for production of offers were developed to be reflective of historic principles on customer expectation on service provision, volume of connection applications and types of connections. These principles are outdated due to increase in connections activity as result of the focus on the decarbonisation journey, diversity on type of generation technologies, changes to types of customers and their expectations on service provision, complexity of solutions being developed and interaction with Transmission Network.
 - b. **Tailored Approach:** The review of LC12 and associated standards must be supported by the review of Major Connections Customer journeys, to ensure where necessary the journey and associated processes are tailored to the needs of the Customers and complexity of the connection offer development.
 - c. **Opt-Out Flexibility:** Current licence conditions and Guaranteed Standards of Performance (GSOPs) stop customers from being able to opt out of predefined timelines. Feedback indicates customers would appreciate access to such flexibility to support the development of more detailed and informed offers that meets their needs.
4. **Enhancing Application Quality**
There is a pressing need to improve the quality of customer applications, which could partly stem from the upcoming G99 changes in 2025. However, further measures should be taken to raise application standards. This includes:
- a. Setting principles on connection date requests to help ensure these are realistic. This would also facilitate recourse options for DNOs when dates are not viable.
 - b. Supply indicative customer project build programmes to support DNOs' development of milestone programme that align with customer needs.
 - c. Establishing clearer requirements for application content to aid offer development and align with customer needs.
5. **Collaboration between DNOs as a new measure of performance**
MCI should also recognise and measure collaborative efforts among network organisations, fostering shared innovation, process improvements, and knowledge exchange that benefit all customers and the broader industry.
6. **Inclusivity in Service Standards**
Given the proliferation of IDNOs and ICPs in the GB connections market, we recommend extending this incentive to these entities. This ensures all customers across the connection sector receive a consistent and high standard of service.

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?

Key messages:

- The focus should shift from quantitative measurements based on outdated/unsuitable timescale frameworks to qualitative assessments of the E2E connections journey. Offers and timelines should be tailored to reflect the complexity of various customer segments and journeys, ensuring they meet realistic and diverse customer needs.

The ED3 period marks a significant transition, emphasising improvements in customer-centric outcomes and collaboration within the connections industry.

In our CVF (Annex 2), we have proposed how customer-centric outcomes can be identified and measured to ensure that any investments and/or services are targeted and commensurate with the value delivered. This approach can be used as a complementary tool in shaping the framework to maximise consumer betterment.

In this particular area we identify the following priorities for this phase:

1. Qualitative over Quantitative Metrics:

The focus should shift from quantitative measurements based on outdated/unsuitable timescale frameworks to qualitative assessments of the E2E connections journey. Offers and timelines should be tailored to reflect the complexity of various customer segments and journeys, ensuring they meet realistic and diverse customer needs.

2. Connections Value Framework:

Establish a framework that balances:

- Reasonable customer needs.
- The ability of DNOs to respond effectively to those needs.
- Consumer value, factoring in resources, system developments, and digital improvements.

This ensures alignment between service quality, operational feasibility, and customer satisfaction.

3. Incentivising Collaboration:

Introduction of mechanisms to incentivise and reward collaboration among DNOs, IDNOs, and ICPs. These mechanisms should recognise instances where such partnerships have enhanced customer service and expedited connections to meet Clean Power 2030 and Net Zero targets. This would encourage solutions that overcome external blockers to connections beyond the control of us or other DNOs.

4. Adaptive Uncertainty Mechanism Process:

- Implementing a flexible uncertainty mechanism process to enable us to adapt to emerging challenges. This includes addressing external drivers such as:
- Government energy policies.
- Regulatory and code reforms.
- Energy market dynamics affecting connection volumes, network development, and operational costs.

The process ensures ongoing alignment with evolving customer expectations and industry demands.

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

Key messages:

- The current IIS incentive has been highly successful in driving performance improvements for customers but doesn't give long term incentives/ investing ahead of need. The IIS incentive only looks to deliver reliability for the average customer and does not incentivise or prioritise those customers on the network periphery with lower performance standards. It is not possible to deliver an uninterrupted power supply from a distribution network designed to P2 standards, investment needs to be proportional to needs and provision of a minimum standard would be appropriate here.
- Ofgem should consider a switch, or complement from, average service to minimum service, as minimum service will be more important with electrification and consumers growing reliance on electricity. Future incentive on reliability needs to look wider with customer and network segmentation to drive a just transition for all with a focus on delivering a level of reliability irrespective of where you are on the network.
- Climate Resilience, however, will require a long-term approach with investment ahead of need to maintain current levels of network reliability (long-term driver led). Therefore, we encourage Ofgem to consider network reliability performance on both a short-term and long-term basis moving forward.

As we progress towards net zero it is inevitable that our customers will become increasingly reliant on electricity for almost every aspect of their lives; from the traditional usage (lighting, appliances, etc.) to the growing demand from electrification heating and transport. This transition will, therefore, also increase the impact of supply interruptions. Thereby also increasing the importance of ensuring that no customer is left behind with regards to network reliability. The current IIS incentive has been highly successful in driving performance improvements for customers, with Customer Interruptions (CIs) and Customers Minutes Lost (CMLs) for the first year of ED2 reducing by 50% and 65% respectively compared to the beginning of DPCR5 (2010/11). In 2023/24 (year 1 of ED2) the average NGED customer now experiences less than one interruption every two years, with an average length of 24.5 minutes. Maintaining overall targets for CIs and CMLs would ensure performance does not slip. However, there are three limitations of the IIS methodology which, in the context of greater electrification and historic performance improvements, leads us to believe that the current scope of the IIS methodology is not appropriate for ED3, as set out below:

1. The IIS methodology does not recognise that it is impossible to deliver an uninterrupted power supply from a distribution network designed to P2 standards.
2. The IIS methodology does not account for the threshold beyond which the investment required to improve is disproportionate to the benefit it would deliver.
3. Current targets are focussed on improving service for the average customer, with no consideration for those on the tail end of the performance bell curve.

We believe there should be a focus on ensuring that, no matter what part of the UK you live in, customers receive a similar level of reliability. Therefore, the incentive for reliability needs to evolve to drive a just transition for all. Segmented targets based on customer/connection type, vulnerability, sparsity, off-gas, etc. could help close the current performance gap, driving more equitable levels of service for all customers. Similar considerations should be made when reviewing the NARM methodology (see question 55).

Finally, careful consideration must be made as to how reliability targets interact with climate resilience investment. Historically, the focus on CI and CML targets encouraged events-based investment decision making (near-term driver led). Climate Resilience, however, will require a long-term approach, with investment ahead of need, to maintain current levels of network reliability (long-term driver led). Therefore, we encourage Ofgem to consider network reliability performance on both a short-term and long-term basis moving forward.

Q39. What role should bespoke outputs and CVPs have in ED3?

Key messages:

- Bespoke outputs are important regulatory mechanisms, providing a route to addressing specific customer needs and fostering innovative solutions that go beyond the core regulatory requirements. They further enable recognition of a local and regional context.
- We should not risk hampering innovation on the basis that there will be a period where some customers benefit ahead of time compared to others if the value can be demonstrated. To ensure this, there's a need to have mechanisms for fast following from others or embedding in BAU.
- To reduce the resource burden and improve the effectiveness of bespoke output proposals, we would welcome clearer eligibility criteria, and an indication of the evidence required for successful proposals.

Bespoke outputs are important regulatory mechanisms, providing a route to addressing specific customer needs and fostering innovative solutions that go beyond the core regulatory requirements.

We do not believe these mechanisms create a postcode lottery. First, bespoke outputs are meant to address specific local issues. As such, they are relevant for the region in which they are implemented, but not necessarily to all other regions. Second, bespoke outputs that are relevant to other regions could be monitored, assessed, and where appropriate, rolled out to other network companies in subsequent price controls to ensure more consistent service levels over time. In this case the initial price control, in which they were proposed and rolled out in one region, is providing a pilot ahead of a potential wider roll out. We should not risk hampering innovation on the basis that there will be a period where some customers benefit ahead of time compared to others if the value can be demonstrated. To ensure this, there's a need to have mechanisms for fast following from others or embedding in BAU.

To reduce the resource burden and improve the effectiveness of bespoke output proposals, we would welcome clearer eligibility criteria, and an indication of the evidence required for successful proposals. We support a focus on proposals with demonstrably significant benefit to customers, which will help keep the number of proposals relatively low.

The definition of bespoke outputs in this context requires clarity. We were awarded a bespoke output for new depots PCD in ED2. This is not necessarily a bespoke output as discussed above, but an area of technical assessment which has then specific PCDs attached.

Under the Consumer Value Proposition (CVP) in ED2, there was an opportunity for DNOs to identify ways in which their plans went beyond the minimum requirements and beyond the functions typically undertaken by an energy network company as business as usual and demonstrate how this would lead to benefits for consumers.

The CVPs in ED2 were focussed on a number of categories identified by Ofgem, including vulnerable consumers, major connection's customers, DSO activities, and whole system approaches, recognising these were areas requiring additional focus in ED2.

We consider there could continue to be a role for CVPs in ED3 if there are particular stakeholder groups which are not adequately recognised in the overall programmes of work. Ahead of completing our detailed stakeholder engagement we cannot predict where these opportunities will lie but think it is important Ofgem keeps CVPs as part of the ED3 framework as further stakeholder feedback is gathered. This could then be considered as part of the SSMC.

Q40. How can we optimise late and early competition models for application in electricity distribution?

Key messages:

- We are supportive of network competition where it genuinely brings value and benefits to consumers. There is active competition in both connections and metering. It should be not assumed that a competition model designed for Transmission networks will be suitable for Distribution as there are significant differences between Transmission and Distribution both in its purpose and asset base.
- We propose a bespoke review and bespoke competition design for Distribution would an appropriate first step and a feasibility review. Ofgem should consider where early competition at the design stage will facilitate innovative ideas resulting in greatest value to consumers.

Support for network competition

We are supportive of network competition where it genuinely brings value to, and benefits, consumers. We recognise that while competition in transmission is nascent, competition in distribution has a long history spanning 24 years. As mandated by Ofgem, competition exists in distribution, specifically for connections (since 2000) and metering (since 2003). Both are fully unbundled with IDNOs and ICPs providing connections to our network. Competition also resides in our procurement practices, which accrues benefits to consumers by keeping costs as low as possible. This occurs as part of our normal and responsible business practices, irrespective of any new competition regime. We are supportive of further network competition where it brings genuine and maximum value to consumers. Given what we have seen in transmission, we are uncertain there is a strong argument for further competition in distribution, above the DNO comparative competition which Ofgem uses at setting price controls, for the following reasons:

- To capture a large enough portion of investments, the materiality threshold would be much lower than in transmission
- Identifying separable projects – even with a reduced materiality threshold – is difficult, as demonstrated by experience in the ED2 price control development cycle
- Given the nature of the distribution grid, there is uncertainty regarding whether new entrants can do a better job than the incumbent while overriding the transaction and interface costs of running a competition

We wish to keep an open mind and would appreciate clarification from Ofgem on its objectives for expanding competition in distribution. To this end, we suggest that development of further distribution competition models would need bespoke exploration with a distribution-specific lens. Beyond using the high-level principles of separable and materiality, a 'lift-and-shift' from

transmission would be inappropriate as the nature of the distribution network is significantly diverse from transmission. We look forward to engaging pro-actively on this topic.

A tailor-made distribution competition regime would be needed

It should not be assumed that a competition model designed for transmission networks, for transmission purposes, to solve transmission problems can be lifted and shifted into distribution. This would not be a fit for purpose solution, given the significant differences exist between transmission and distribution – they do different things with different assets to serve different purposes. For example:

- As acknowledged in Ofgem's ED3 Framework Consultation, distribution and transmission networks are different: "The ED network comprises approximately 800,000 km of buried and overground cables across GB, transporting energy from where it is generated to our homes and businesses." (Para 2.1 page 12 and Footnote 16 page 35)
- National Grid's experience in England and Wales spans both distribution and transmission:
 - NGED owns and maintains greater diversity of voltage lines (6.6kv, 11kv, 33kv, 132kv) versus NGET (275kv or 400kv).
 - NGED has >185,000 substations across its area whereas NGET has over 300.
 - NGED manages a network of 220,000 km of overhead lines and underground cables. NGET manages 7,000 km of overhead power lines.
 - NGED's largest projects are £20-30M, and are all reinforcement, so there is a greater number of smaller works.

NGED's high number of assets are embedded, and there is unique distribution complexity in the interactivity of adjacent networks and grandparent/parent/child networks, as these are meshed. Distribution work is distinct from transmission work including in how it is planned, how it is delivered and across what timeframe. Overall, there is likely to be more uncertainty about what is coming forward in terms of investments, resulting in less sight for third parties who may want to participate, as well as the need for those investments to be delivered quickly. Therefore, a tailor-made distribution competition regime would be needed.

Separability and safety, security and quality are all matters which would need to be explored with a bespoke distribution lens

Based on the above, we expect competition in distribution would find the separability criterion challenging. Related to separability, it is uncertain how the DNO can ensure resilience, safety, security, and quality of supply should there be an increase in network infrastructure that is built, owned, and operated by a third party. In transmission, for example, it remains to be seen how competition will impact transmission owners' ability to meet SQSS. In distribution, this raises a further question if an equivalent of SQSS standard is needed (1) as good practice to governing and operating a distribution network as well as (2) an enabler to distribution competition.

Genuine value to consumer

We are supportive of network competition where it genuinely brings value and benefits to consumers. Our observation is that moving competition in transmission to a late-early model (to accommodate more centralised planning of the network) misses some of the opportunity for innovation in design. This, combined with tighter financial markets and supply chain constraints leaves limited opportunity for consumer benefits to be realised. For any possible distribution competition model, we support Ofgem's current definition of early competition as it is inclusive of network design.

It has been acknowledged that transmission network competition adds approximately 2 years to scheme delivery due to running the competition. While distribution competition timescales are unknown, there will certainly be an impact to the delivery timescale. How this impacts consumer value needs to be explored.

Therefore, the pool of schemes to be competed will need careful selection criteria that may exclude those non-critical for impending government policy deadlines such as Clean Power 2030 and any work needed to avoid future diminishing headroom as cited in Ofgem's ED3 Framework Consultation (Page 36, para 6.4). This then raises the question of what projects would be appropriate and what whole system value does it bring to consumers.

Developing a competition model for distribution

Given the complexity of the distribution network, we suggest that a bespoke review which explores bespoke competition design for distribution would be an apt first step. It is not a simple case of leveraging the nascent transmission model. Developing a distribution competition model that maximises whole system value to consumers should be carried out thoughtfully. Such a review might look into:

- Feasibility given distribution network complexity and defining what competition could look like
- Enabling work needed, such as the likely need of an SQSS equivalent in distribution and whether or not existing legislation is appropriate
- Value to consumer methodology/determination which is taken in conjunction with the appropriateness and timing for implementing a competition model.

On the third point above, further consideration needs to be given to at least two dynamics: (1) where competition should occur that will generate value to consumers and (2) if distribution network competition generates whole system benefits in a period of rapid growth when time is a driving factor to meet government targets. As we are seeing in transmission, there is a two-tier system emerging between ASTI and non-ASTI projects, whereby ASTI projects essential to meet government targets are not competed. It is not known if a commensurate two-tier system in distribution would emerge and if indeed it would be in the best interests of consumers.

A review should also consider how any market could be created for distribution competition, such as:

- Source of pipeline of schemes to be competed: in transmission, the idea is for the pipeline to be borne out of CSNP. The question remains on what would be appropriate for distribution.
- Transmission utilises a CBA for early model competition as well as a materiality threshold of £100m for late model competition. A bespoke approach for distribution would need to be developed.
- With supply chain constraints and Ofgem's expectation of low cost of finance, it is not known if investors would see value in schemes which are ~20-35% the size of transmission.

We are supportive of exploring how competition in distribution network reinforcement could bring value to consumers. In the ED2 development cycle, we identified a scheme with the potential for competition on the rough criteria of high value for distribution and separable, though it is to be seen if the scheme would remain appropriate following a distribution-specific review into developing distribution network competition.

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?

Key messages:

- Tools for cost assessment will need to adapt to acknowledge the evolving cost drivers and cost factors in ED3, recognising that there will be a greater disconnect between historical and forecast data. The increasing divergence in cost and cost drivers means that Totex regression models may no longer have sufficient accuracy or statistical robustness to be relied on to set cost allowances, with therefore a greater reliance needed on disaggregated and technical assessment in areas materially affected by the drivers of change.
- Regional and company specific factors will need to be more fully considered in the ED3 cost assessment process as these become increasingly important. This will require greater collaboration with DNOs by Ofgem throughout the process, and will need to influence the development of data templates to ensure the availability of data that may not have been collated or collected historically. Ofgem will need to be cognisant of and assess what level of service or workload the benchmark model is funding for the future and its comparability with historical outputs. Unit costs may differ significantly moving forward with factors like climate resilience and smart automation/telecommunication technologies skewing traditional cost benchmarking and trajectory of asset costs/skilled labour, and new ways of working will further inhibit our ability to rely on historic costs. Furthermore, investments/delivery output that are ring fenced for separate assessment may create distortion to benchmarking of remaining costs (e.g. indirects) and may necessitate significant revision to historical cost models.

We consider that the overall cost assessment framework should continue to rely predominantly on a tool-kit approach, with an ex-ante Totex allowance, alongside a Totex Incentive Mechanism (TIM), which provides a strong efficiency incentive, including through innovation, with benefits for consumers.

However, the tools for cost assessment will need to adapt to acknowledge the evolving cost drivers and cost factors in ED3. Some costs, such as Load Related Expenditure (LRE), would be materially influenced by the drivers of change – primarily the transition to net zero and its implications on load requirements. These costs may also be influenced by a different regulatory model, namely the plan and deliver model, with an increased focus on anticipatory investment. As a result, there is likely to be a greater disconnect between historical and forecast expenditure, as well as the need to identify new cost drivers.

The increased divergence in cost drivers and regulatory model between different types of costs at ED3 means that Totex regression models may no longer have sufficient accuracy or statistical robustness to be relied on to set cost allowances, with a greater reliance on disaggregated and technical assessment in areas materially affected by the drivers of change.

Unit costs for building and upgrading the network will differ significantly moving forward, and these costs cannot rely on historical cost benchmarks. Factors like climate resilience and smart automation/telecommunication technologies are expected to skew traditional cost benchmarking. Factors such as the trajectory of asset costs/skilled labour and new ways of working will further inhibit our ability to rely on historical costs. Other drivers for change are environmental – an example is the switch to creosote-free poles, which are signalled to be higher cost and have a lower lifecycle – and therefore historical costs are not indicators of future cost.

Regional factors will need to be embedded into the approaches. Regional wage differences, and the use of density and sparsity need to be considered holistically (only regional wage adjustments were applied at ED2; this approach needs a thorough review at ED3). Company specific factors will become increasingly important, given the changing investment. For NGED, increased climate impacts and implications are being increasingly felt and will need to be factored into investment plans and thus cost assessment of these. For example, the impact of more frequent storms especially across our South West and South Wales licence areas; and the implications of heat islanding in more urban areas, particularly impacting our West Midlands and East Midlands licence areas. These are important issues, which are being discussed more widely through the Climate Resilience Working Group, and the Climate Change Adaptation Report “Round 4 (ARP4)” (submitted to DEFRA on 10 January 2025), and which will inform our thinking.

The interaction of RESPs with cost assessment requires further evaluation and discussion. While RESPs are covered in detail elsewhere in the framework document and this response, we emphasise here that effective cost assessment depends on (i) clear RESP outputs delivered on schedule, and (ii) well-defined instructions and policies in both the Business Plan Guidance and SSMC (e.g. the delineation of roles of RESPs, CBA and cost benchmarking in assessing load investment proposals). Ultimately, the success of this process hinges on providing DNOs with consistent inputs and scenarios for their business plans.

To ensure a robust cost assessment at ED3, assessment of approaches must be undertaken collaboratively with DNOs throughout the price review process through the CAWG. The availability of data is key, and collection of cost and driver data needs to be prioritised through BPDT development. To also aid robust assessment, we encourage greater and earlier sharing of data and assumptions amongst DNOs and by Ofgem. We also encourage Ofgem to consult on specific cost assessment topics throughout the process, including on econometric modelling and the approach to ongoing efficiency.

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?

Key messages:

- Cost benefit should evolve to take into account wider environmental and social costs of intervention which will be particularly important for anticipatory investment.
- ED3 CBA guidance will need to adopt the use of common values and assumptions, where practical to do so, to promote comparability across projects and DNOs. Clarity will also be required on how and where any interactions with technical and/or engineering assessments are applicable and how this output feeds into and informs the cost assessment process at either an aggregated or disaggregated level.

The ED2 CBA guidance sets out the framework for a Cost Benefit Analysis (CBA) alongside standardised assumptions related to key environmental and safety outcomes. We support the inclusion of wider costs and benefits in a CBA framework. Given the difficulty in quantifying wider costs and benefits, we encourage the continued use of common values and assumptions (e.g., with regard to discounting, payback period, and value of reduced carbon emissions) as much as practicable, to promote comparability across projects and DNOs.

A key area where the CBA guidance may need to evolve is in relation to the cost benefit analysis of anticipatory investment. Anticipatory investment provides certain benefits, for example, investment in

capacity ahead of when it is needed reduces the risk of a delay to the net zero transition. At the same time, it carries the risk that customers end up paying for stranded capacity if the capacity turns out not to be required. The risk and considerations of under and over investment are discussed in our response to question 12.

The CBA guidance may therefore need to set out appropriate assumptions and criteria for quantifying the benefits of anticipatory investment and 'headroom' availability (i.e. the benefit of reducing the risk of delaying the net zero transition) and how it can be assessed against the risk of a stranded investment.

Clarity is required on how cost benefit analysis interacts with the outputs from the RESPs. There is also the need to clearly set out how cost benefit analysis interacts with the benchmarking analysis, and when CBAs are required. We support the use of technical assessment, but Ofgem needs to be clear on what this means in practice. Technical assessment to us means the submission of CBAs and Engineering Justification Papers (EJPs) with assessment through the Engineering Hub. Ofgem should be clear on what investment areas will be subject to technical assessment as well as where EJPs and CBAs are required.

Q43. Do you agree that the current Real Price Effect (RPE) methodology should form the basis for adjusting allowances in ED3?

Key messages:

- RPEs are an essential part of a Totex allowance. We agree with the general approach to RPEs, providing an ex-ante allowance and an annual true-up in respect of input inflation. However, their application in ED3 will require significant revision from the approach adopted in ED2, including a review and assessment of the applicability and predictive powers of the indices chosen for ED2 and the notional cost structure. These should be assessed utilising the data now available in ED2 to ensure they are genuinely representative of the inflationary pressures faced by DNOs and the nature of the activities undertaken and how these costs are presented in current cost reporting rules.
- We believe Ofgem should remove materiality as an RPE criterion. At ED2 this mechanism removed the categories of equipment and transport from the RPE mechanism despite cumulatively having a material impact on DNOs.
- Consideration of the appropriate RPE indices is key to reduce volatility and we support the triangulation of several input price indices for each RPE category, and, where appropriate, the use of caps and collars.

RPEs are an essential part of a Totex allowance. This is because inflation is largely beyond management control and therefore represents a genuine cost to an efficient operator. RPEs adjust the CPIH indexation of price controls to ensure that the remuneration for inflation is done in relation to inputs that are relevant to DNOs, such as labour, material and transport, rather than in relation to the wide-ranging goods with the CPIH. Our response to this question is based on reference to the ED2 (i.e. 'current') methodology, with the focus on the high-level framework in place. In summary, we agree with the general approach to RPEs, namely of making initial RPE allowances based on inflation and index forecasts for the price control period, and an annual tru-up in respect of input inflation. However, we do not agree with many of the principles and tools used at ED2 to implement the approach above. The current approach in ED2 is providing a misalignment between Ofgem's policy and the reality of current cost inflation experienced by DNOs. This is causing underperformance against this element of Totex allowances for all companies, in turn leading to underfunding of efficient costs and reduced investability in the sector, driven by factors outside of

company control. In light of this, RPEs will need to be thought about differently in ED3. The mechanisms that are to be developed for T3/GD3 are also not necessarily precedent setting, given the differences in sectors. At ED2, Ofgem rejected providing RPEs for two input categories – equipment and transport – despite evidence of stable and positive inflation wedge with the CPIH, on the basis that these inputs are immaterial and therefore it would not be proportionate to have an uncertainty mechanism in place. We do not consider that materiality should be a criterion for acceptance of RPEs. A mechanism of automatic indexation, such as the RPEs annual tru-up, entails low regulatory burden, in particular given that the mechanism is already in place for other inputs, such as labour. Together, the categories of equipment and transport accumulate to a material exposure to input inflation, which presented another source of asymmetric risk and an ineffective efficiency challenge to DNOs at ED2. RPEs should cover all inputs where there is a clear and stable wedge (positive or negative) from the CPIH. The calculation of the notional cost structure (common to all DNOs in ED2, which drives the allocation to Labour, Materials etc) requires review, and there should also be an exploration of a potential tru-up of this through the price control, especially in a fast changing energy landscape.

During the first year of ED2, 2023/24, the tru-up of RPEs is materially negative, in contrast to the positive RPEs forecasted at the time of Final Determinations. This does not reflect the actual inflation we have faced on the inputs covered by RPEs, such as labour and material. Some indices, such as Structural Steelworks index, have also shown significant volatility in the last few years. In light of this experience, a major review of price indices is necessary. We consider that stability of the input inflation index is an important characteristic when selecting indices. This provides stability and predictability for DNOs and customers' bills. In addition, to reduce volatility and risk that any given index is not reflective of DNOs' inflation, we support the triangulation of several input price indices for each input (with also consideration of how these are weighted – the current approach is that all are weighted equally within an input category, which doesn't necessarily account for the relative importance of each) and, where appropriate, the use of caps and collars. Another area to explore could be lagged indices, representing the lag between when prices are set and when costs are incurred. Ofgem and the DNOs should work collaboratively on developing direct, DNO based RPE indices using DNOs' internal input cost data. At the minimum, such data can help identify the most appropriate input price indices to use for RPE tru-up. More radically, such data can be used directly in RPE tru-up, if it is deemed robust and reliable.

Many infrastructure sectors across the economy, including the energy, water, transport, and construction sectors, are gearing up investment. Competing infrastructure projects inside and outside the sector is expected to result in significant supply chain pressures, with higher prices and delivery risk. In this context, the implementation of RPE reconciliation based on input price indices that are external to the sector, carries a risk of inaccuracy, namely that these indices do not adequately reflect the supply chain challenges and resulting cost pressure within the sector. Using DNOs' input price data could mitigate such risk (as suggested in the paragraph above).

Q44. Do you agree that the current approach to setting the ongoing efficiency challenge is a suitable starting point for ED3?

Key messages:

- We do not agree with the approach to setting the ongoing efficiency (OE) challenge at ED2, and so this is not a suitable starting point for ED3. Actual recent evidence suggests productivity improvements have been much less than the 1% assumed by Ofgem in the ED2 allowances. We advocate a return to evidence-based regulation when setting the OE challenge. The OE challenge should be based on recent relevant evidence of productivity growth (not on higher, pre-2008, rates).
- Specifically, for ED3, we consider that the changing nature of the infrastructure sector, the step change in activity and the considerable supply chain pressures anticipated put in question the suitability of an OE challenge in many areas.
- We strongly support an early separate consultation on the principles to determine OEs in the interests of transparency.

We do not agree with the approach to setting the ongoing efficiency (OE) challenge at ED2, and so this is not a suitable starting point for ED3.

Our key concerns are:

- Over-reliance on pre-2008 productivity data despite consistent evidence of lower productivity gains since then. Recent evidence—whether based on EU KLEMs data or forecasts by the BoE/OBR—has consistently shown significantly lower productivity gains than the 1% annual productivity gain that DNOs were set to deliver at ED2.
- Reliance on qualitative and un-quantifiable arguments to justify an uplift to the efficiency gain estimate (e.g., the extent that productivity data includes embodied technological change; the impact of the innovation fund). Such arguments have led to a material uplifting the OE rate from the rate inferred from the data, and to the undermining of evidence-based regulation. Moreover, there are multiple credible arguments for a downward adjustment (e.g., the overlap of productivity data with catch-up efficiency improvements; the link with service quality improvements), but these have been given low or no weight at ED2.

We advocate a return to evidence-based regulation when setting the OE challenge. The OE challenge should be based on recent relevant evidence of productivity growth (not on higher, pre-2008, rates). Departing from recent UK evidence and making optimistic assumptions on productivity growth can result in unrealistic and ineffective cost challenges, and incorrect allowances for DNOs which is not in the interest of UK consumers. Specifically, for ED3, we consider that the changing nature of the infrastructure sector, the step change in activity and the considerable supply chain pressures anticipated put in question the suitability of an OE challenge in many areas - similar to our position on RPEs. Given this context and recognising that OEs and RPEs often largely offset one another, it may be appropriate to explore the removal of OEs and RPEs altogether for the sake of simplifying the price control. Given the concerns, the different ED3 context, and the materiality of the OE challenge, we advocate for a separate early consultation on the principles and approach to determining the OE challenge at ED3 in the interests of transparency.

Q45. Do you see any reason why we should not implement the proposed changes to the calculation allowed returns, consideration of investability and assessment of financeability that we set out in RIIO-3 Sector Specific Methodology Decision – Finance Annex for ET, GT and GD?

Key messages:

- Whilst elements of the RIIO-GD/T3 Sector Specific Methodology Decision – Finance Annex can be implemented for RIIO-ED3, the ED3 financial parameters should be fully considered to ensure the whole package is appropriate.
- Allowed returns need to be sufficient to attract and retain the significant level of capital required in an environment of increasing, international, competition for capital in the push for net zero.
- Investor decision making will be influenced by a macro environment that has changed dramatically as we have transitioned from a 'lower for longer' to a 'higher for longer' interest rate environment.
- Securing the necessary investment underpins Ofgem's duties and is in consumers' interests as delays or underinvestment could result in higher energy costs and higher constraint costs in the longer term.

Whilst there are elements of the RIIO-3 Sector Specific Methodology Decision – Finance Annex for ET, GT and GD which can be implemented for RIIO-ED3, there are differences between sectors which mean that not all elements of the RIIO-GD/T3 financial framework can be directly applied to ED3. We agree that it is logical for Ofgem's starting point in its approach to investability and financeability, and the calculation of allowed return for ED3, to be the RIIO-3 approach taken for ET, GT and GD. However, it is important to acknowledge there are key differences, for example in the areas of asset lives and capitalisation rates, and the ED3 financial parameters should be fully considered to ensure the whole price control package is appropriate. Further, each price control is an opportunity to improve and build upon the previous one, and we therefore encourage Ofgem to consider how this can be done in ED3.

Ofgem makes multiple references to maintaining or achieving a low cost of capital in the ED3 Framework consultation. Ofgem should aim to keep what is good about RIIO to maintain the relatively low cost of capital in regulated infrastructure relative to other sectors; however, the focus should be on setting the 'right' cost of capital; this needs to be sufficient to attract the significant level of capital required in an environment of increasing, international, competition for capital in the push for net zero. It is critical that the ED3 framework is financeable and investable to attract and retain the necessary levels of capital.

As noted in National Grid's response to the SSMC for RIIO-GD/T3, we understand and recognise that Ofgem has committed to following the UK Regulators Network (UKRN) guidance, but we note that this must be considered in light of Ofgem's statutory duties, including its new net zero and growth duties.

The theoretical Capital Asset Pricing Model (CAPM) approach to calculating equity returns needs to be considered through a lens of attracting and retaining new debt and equity finance in a highly competitive international market for capital. We welcome steps Ofgem has taken in recognition of this in RIIO-T/GD3 so far, with the introduction of the concept of investability due to the potential challenges that the sector could face in attracting and retaining the required capital in this and future price controls, and Ofgem's inclusion of European comparators when setting beta. Ofgem has also recognised the value of a suite of market cross checks; we agree that this is important to ensure we do not focus solely on traditional backward-looking methodologies. For example, an exclusive reliance on CAPM to determine returns would be at odds with international regimes we are competing with for capital, which weight results from various methods to ensure an appropriate

return. We are keen to work with Ofgem to explore the balance between the use of CAPM and other methodologies and cross checks when setting the cost of equity.

Investability

We welcome Ofgem's introduction of the concept of investability in RIIO-3 and wholly agree that this should be considered alongside financeability.

In National Grid's response to the RIIO-GD/T3 SSMD, we set out how the importance of setting a Cost of Equity sufficient to attract the required investment has been made clear by various regulatory bodies, including the CMA during the T2/GD2 Appeal decision: "It is also our view that while regulators should use robust evidence in the process of estimating the cost of equity, the ultimate requirement should be to ensure that the overall cost of equity allowance is sufficient to attract investors and allow companies to finance their activities..."^[1].

Investor decision making will be influenced by a macro environment that has changed dramatically as we have transitioned from a 'lower for longer' to a 'higher for longer' interest rate environment. The financial framework must recognise this transition, including that the returns on debt available to investors are substantially higher than they have been in well over a decade, and therefore returns Ofgem may have considered appropriate in previous controls may no longer be sufficient.

It is also important to recognise the importance of cash flows for investors, and the importance of maintaining a strong investment grade credit rating. Earnings growth should match asset growth and support acceptable dividend yields for investors when compared with other potential investment opportunities. It is also important that the financial package drives value for consumers through a range of incentives, meaning a well performing company has the opportunity to earn returns above the baseline cost of equity.

The importance of investability in ED3 also underpins Ofgem's new statutory net zero duty, as failing to secure the necessary investment in the sector would not meet consumers' interests in the UK meeting its net zero targets.

Financeability

As discussed further in our response to question 46, -ED3 must be assessed as financeable based on meeting a Baa1/BBB+ level of credit rating. This is essential for the purposes of maintaining strong access to capital, including at times of high market stress, and maintaining confidence in investability and financial resilience.

Cost of Equity

We note the collective work that has been undertaken by network operators via the ENA on considerations when setting the Cost of Equity, to respond to Ofgem's RIIO-GD/T3 SSMD. We reiterate key messages from this work below.

Risk free rate (RfR)

Ofgem should recognise the existence of a convenience premium. We note that Ofgem does not account for the convenience premium embedded in gilt yields in its determination of the RfR in the RIIO-3 SSMD for Gas and Transmission companies. However, the existence of the convenience premium is well documented in academic literature and other regulators, including the Competition and Markets Authority (CMA), the Civil Aviation Authority (CAA) and the Utility Regulator (UR), have adjusted the government bond yield for the convenience premium. Making no adjustment for it when setting the RFR introduces a downward bias to the estimate for a five-year price control period^[2].

Total Market Return (TMR)

Evidence suggests that TMR has increased since RIIO-2 and that the TMR is higher than Ofgem's proposal in the RIIO-3 SSMD for the gas and transmission sectors.

Whilst Ofgem gives equal weight to ex post and ex ante approaches in its RIIO-3 SSMD for gas and transmission, we consider that little weight should be placed on ex ante approaches, given the level

of subjectivity required in estimation, whilst noting that recent estimates made by Ofgem and Ofwat are flawed for several technical reasons[3], and that correcting for these moves the ex ante TMR closer to the ex post position. We also do not consider there is evidence of serial correlation to support Ofgem's downwards adjustment when calculating the ex ante TMR[4].

In addition to the long run historical TMR, current market conditions must be considered, and Ofgem should recognise the higher interest rate environment in the estimation of TMR. We note the UKRN cost of capital guidance, whilst recommending greater stability in TMR than in equity risk premium, states that "This approach does not imply that regulators should simply pick the same fixed value for the TMR in each decision for all time, but that the TMR would be relatively less variable than the underlying RFR"[5] and notes that setting TMR through the cycle could result in a TMR that is biased[6]. Ofgem also recognises that considering returns on a through the cycle basis may cause issues if there is a disconnect between the through the cycle estimate and current market required rates of return.[7] The ENA has gathered evidence for Ofgem on a TMR Glider cross check, which quantifies the relationship between market-based forward implied TMR and prevailing interest rates which allows the estimation of a TMR that reflects the market interest rate[8].

Beta

In terms of comparators, we support Ofgem's inclusion of European comparators when setting beta. However, we disagree with Ofgem's view to exclude Pennon from its comparator sample. The regulated share of Pennon's business has increased over time and, since mid-2020, it is now materially the whole business[9], so it should be included in the 2 year, and possibly 5 year for ED3, beta samples, consistent with UKRN guidance.

We welcome Ofgem reviewing levels of risk by sector; as Ofgem's approach to the ED3 price control becomes clearer, we will have a better understanding of the level of risk associated with this, which will further inform our views on Beta.

Cross-checks

Ofgem recognises the value of a suite of market cross checks; we agree that this is important to ensure we do not focus solely on traditional backward-looking methodologies. Exclusive reliance on CAPM to determine the Cost of Equity risks setting a return that is not appropriate, given we are competing with for capital with international regimes which weight results from various methods.

We therefore support Ofgem's use of cross checks when setting the Cost of Equity and consider that most weight should be placed on those that are transparent and replicable, with multiple data points. It is important that cross checks are assessed fairly and transparently against these criteria, with equivalent thresholds to assess the weight they are given for consideration. Debt based cross checks, namely hybrid bonds and ARP-DRP, are most useful as they provide a floor when setting the Cost of Equity, given that equity holders should receive a greater return than debt holders to compensate for the additional risk they bear. Infrastructure Fund Internal Rates of Return, Market to Asset Ratios, survey evidence and accounting profitability cross checks provide further evidence which must be considered carefully in light of other information, with less weight placed upon these, given their level of subjectivity and/or assumptions.

Hybrid bonds

Hybrid bonds are securities that combine debt and equity characteristics; therefore, a cross check between equity returns and returns on hybrid debt is a powerful debt market cross check, and can be used to evaluate whether the allowed equity return lies sufficiently far above the long-term return on debt. At SSMD, Ofgem said: "we agree with the broad principle that we would expect equity returns for an asset to be strictly higher than debt returns for the same asset. By extension, we can in theory consider the pricing signals from 'hybrid' instruments that have both debt and equity like features"[10]. In its report commissioned for networks by the ENA[11], Frontier Economics has responded to Ofgem's concerns and bolstered the hybrid bonds cross check shared with Ofgem at RIIO-GD/T3 SSMC.

ARP-DRP

This cross check uses market-observed data on current debt spreads to test the reasonableness of a cost of equity that is estimated using theoretical models, such as the CAPM. Evidence from Oxera^[12], again commissioned by the ENA, demonstrates that ARP-DRP can be applied to eliminate parts of the cost of equity range that provide an inadequate risk premium relative to debt.

Infrastructure fund Internal Rate of Return (IRR)

In RIIO-2, Ofgem used discount rates for a set of infrastructure funds that invest in private finance initiatives and private utility assets to infer an equity IRR. In the RIIO-GD/T3 SSMD, Ofgem stated it will 'consider if and how a simple and objective infrastructure fund implied equity IRR cross check can best be applied'^[13]. As set out in the Frontier report^[14], it is important to exercise caution when interpreting the returns of specific funds and we consider that the equity IRR evidence is most suited to understanding trends in market conditions over time.

Market to Asset Ratios (MARs)

As set out in National Grid's RIIO-T3 Business Plan, National Grid considers MARs to be a weak cross check, based on the wide range of assumptions that need to be made, which result in a wide range of MAR estimates.

Accounting profitability

We consider that a review of accounting rates of return over a longer horizon can be informative about required returns.

Aiming up

Whilst the 2023 UKRN guidance recommends setting the cost of equity at the mid-point of the range, the guidance does not rule out a cost of equity above a reasonable mid-point where there is justification to do so. Indeed, we note that in its recent PR24 Final Determinations, Ofwat has set a Cost of Equity figure above the top of its cost of equity range, stating: "Our allowed return on equity ... is a figure that is at the top end of our cost of equity range, which - together with amendments to the overall PR24 incentive package – will help to support a level of investment that looks to be higher than any 5 year period since privatisation."^[1]

New information/circumstances which suggest there is reason for deviation from UKRN guidance and to aim up when setting the Cost of Equity include:

- Step change in the level of investment
- Increasing competition for investment
- Ofgem's net zero and growth duties
- Asymmetry of the impact of setting costs of equity too high versus too low.

There is broad agreement that setting returns too low is more detrimental to consumers than setting returns too high, in that the consequences of underinvestment, due to a lack of available capital to invest, far outweigh the impact of setting a slightly higher cost of equity. This asymmetry is exacerbated in the context of ED3 where, as Ofgem states in para 6.21 of the RIIO-ED3 Framework Consultation, it is in consumers' interests to avoid distribution networks becoming a blocker to net zero, and 'the risk and downside from overinvestment in a future characterised by rapid demand growth will reduce and the risk and downside for consumers from delayed investment will increase.' Ultimately, if the Cost of Equity is set at a level that fails to attract the required capital, harm will be suffered by consumers who will face higher energy costs and higher constraint costs as a result of investments being delayed or, in extremis, not built at all.

¹ p.5, Ofwat, PR24 Final Determinations, Aligning Risk and Return, December 2024
[PR24-final-determinations-Aligning-risk-and-return-1.pdf \(ofwat.gov.uk\)](#)

Cost of debt

Ofgem lists methodological improvements made in the RIIO-GD/T3 SSMD that it anticipates are likely to be relevant to the ED sector for Cost of Debt as:

- the payment of an element of the debt allowance in nominal terms to address the inflation leverage effect; and
- implementing a RAV-weighted approach to setting the cost of debt allowance for the ED sector^[15].
- We are supportive of Ofgem's introduction of a nominal cost of debt allowance for fixed rate debt as it removes the leverage effect and better matches cash outflows to allowances.

Equally, we welcome Ofgem's introduction of the RAV-weighted cost of debt allowance in the RIIO-3 SSMD for gas and transmission companies, and are supportive of the implementation of a RAV weighted cost of debt for ED3 as this should improve the alignment between the cost of debt allowance and the cost of new debt, mitigating some challenges of deviations in the cost of debt, and in levels of Totex, for companies, whilst also working in the interests of consumers by compensating companies for capital raised to invest in infrastructure. We note that the calibration of the cost of debt allowance, and the starting point for the RAV weighting period, will have a significant impact on how appropriate this approach is.

As stated above, whilst there are elements of the RIIO-3 Sector Specific Methodology Decision – Finance Annex for ET, GT and GD which can be implemented for RIIO-ED3, there are differences between sectors. This is particularly evident in the area of asset lives, given the divergence of future investment profiles between the electricity and gas sectors, and the impact of the extension of asset lives from 20-45 years which is most pronounced in the electricity distribution sector over RIIO-3. We discuss asset lives further in our response to Q.47. Another area where it may not be appropriate to align financial parameters between sectors is capitalisation rates, given differing levels and profiles of investment. At this stage in the process, there remains considerable uncertainty over the ED3 price control parameters, therefore it is too early to compare risk across sectors, but it should be noted that the impact of Ofgem's decisions in the areas of, for example, ex post assessment and lack of fungibility of allowances are likely to impact the risk profile of the electricity distribution sector and consequently the cost of capital.

^[1] RIIO-2 CMA Final Determination, paragraph 5.723

^[2] p.3, Oxera, RIIO-3 Cost of equity- CAPM parameters, 8 November 2024, section 3.2 and 3.3

^[3] Details are set out in Oxera, RIIO-3 Cost of equity- CAPM parameters, 8 November 2024, section 3.2 and 3.3

^[4] Oxera, RIIO-3 Cost of equity- CAPM parameters, 8 November 2024, section 3.2

^[5] UKRN, UKRN guidance for regulators on the methodology for setting the cost of capital, 2023, p. 19

^[6] 28 UKRN, UKRN guidance for regulators on the methodology for setting the cost of capital, 2023, p. 2

^[7] Ofgem, RIIO-3 SSMD, Finance Annex, July 2024, para 3.265

^[8] Updated Cost of Equity Cross-Check Evidence, Chapter 7, Frontier Economics, 22 November 2024.

^[9] RIIO-3 Cost of Equity, Prepared for National Grid Electricity Transmission, Frontier Economics, November 2024

^[10] Ofgem, RIIO-3 SSMD, July 2024, Finance Annex, 3.270

^[11] Frontier Economics, Updated cost of equity cross-check evidence, November 2024, section 2

^[12] Oxera, RIIO-3 Cost of Equity, March 2024, section 3; Oxera, Evaluation of the ARP-DRP framework, November 2024

^[13] Ofgem, RIIO-3 SSMD, July 2024, Finance Annex, 3.269

^[14] Frontier Economics, Updated cost of equity cross-check evidence, November 2024, section 3

^[15] ED3 Framework Consultation, Ofgem, 6 November 2024, para 7.96.

Q46. Do you see any reason why we should not implement the proposed updates to financial resilience requirements that we set out in RIIO-3 Sector Specific Methodology Decision – Finance Annex for ET, GT and GD?

Key messages:

- There are already considerable financial resilience measures in place. We support Ofgem's decisions to strengthen ring fence conditions in its RIIO-GD/T3 SSMD but do not see a need to go further than this.
- Ofgem must consider the interaction of any proposed financial resilience changes with price control policies, and signals to investors, alongside the benefit to consumers, given the critical importance of financial resilience in attracting and retaining investors.
- Maintaining an investment-grade rating of Baa1/BBB+ is important for investor confidence and consumer interests.

We anticipate the changes Ofgem proposed in the RIIO-3 Sector Specific Methodology Decision for Gas and Transmission companies will also be applied to Electricity Distribution, namely:

- Changing Network companies' licence conditions to require licensees to maintain more than once credit rating;
- Amending the dividend lock up to be the earlier of reaching BBB- with negative outlook and 75% regulatory gearing
- Amending the Availability of Resources certificate to require that the licensee states that, based on agreed assumptions, it has sufficient financial resources to cover the entire price control period, or a minimum of three years ahead.

We note that there are already considerable financial resilience measures in place and support Ofgem's decisions in its RIIO-3 SSMD for the gas and transmission sectors to strengthen ring fence conditions. However, we do not see that there is need to go further than this; energy network companies are not suffering the financial distress currently being experienced in other sectors, which is likely explained by the existence of Ofgem's existing measures, which we consider strike the right balance between consumer protection and licensees' flexibility to choose their financing structure.

We note that, in addition to the changes above, Ofgem issued a further Ringfence Review: Energy Networks Call for Input in September 2024, which proposed further measures and restrictions. There is a risk that some of the suggestions discussed as part of this could have unforeseen and possibly unintended consequences which risk increasing costs to consumers and having a detrimental impact on financial resilience. Network companies are currently structured to operate under Ofgem's current licence conditions, and consumers benefit from efficiencies such as shared service models and group treasury operations.

We also note that our support for the changes Ofgem has proposed in the RIIO-3 SSMD for gas and transmission companies is on the understanding that these changes are implemented based on current licence definitions. The SSMD extends the availability of resources requirement to cover a minimum of 3 years, based on agreed assumptions, but if Ofgem were to change the licence as part of its ringfence conditions review to require the resources to be available to the licensee without reliance on the group, this would materially change the impact of the SSMD position, increasing costs for consumers considerably and adversely impacting investability.

NGED is focused on delivering consumer outcomes and agrees that networks should be held accountable for delivering these. However, financial resilience cannot be considered in isolation from financeability and investability and, as part of any proposed changes, Ofgem must consider the interaction with price control policies, and signals to investors, alongside the benefit to consumers,

given the critical importance of financial resilience in attracting and retaining investors. It is therefore important to ensure that Financial Resilience and investability measures are complementary rather than conflicting.

One example where this area could be improved is the link between financeability assessment and financial resilience. Ofgem must ensure there is sufficient headroom in any financeability assessment to ensure network operators can withstand shocks. However, in the RIIO-3 SSMD for the gas and transmission sectors Ofgem appears to show a weaker commitment to financial resilience by stating that “we do not currently consider there to be evidence of a need to target a particular credit metric levels across our assessment of financeability”^[2], and that “a BBB/Baa2 investment grade rating (rather than the higher BBB+/Baa1 rating suggested as required by the Network companies) would meet associated licence requirements”^[3].

Maintaining an investment-grade rating of Baa1/BBB+ is important for investor confidence and consumer interests. Aiming for a minimum credit rating of Baa1/BBB+ improves access to the debt market and reduces debt costs compared to a Baa2/BBB rating. For example, looking at the USD IG market, during the financial crisis in 2008 there was a three-month period with no issuance from ‘BBB-’ corporate borrowers and the majority of issuance was from ‘single A’ rated borrowers. Ofgem has also acknowledged this in previous price controls; in the RIIO-T2 DD Finance Annex Ofgem commented on the benefits of Baa1/BBB+ rating. Lower cost of debt was mentioned among a number of other benefits, with the cost “estimated at 15-30bps between Baa1/BBB+ and Baa2/BBB”^[1]. In the RIIO-ED2 FD Finance Annex, Ofgem stated, “in principle, there would be benefits for notional companies if credit quality was stable at two notches above minimum investment grade (i.e. BBB+/Baa1)”^[2]. We note also that, in its Summary of Final Determinations for the water companies’ price control appeal [on PR19], the CMA uses the iBoxx A/BBB benchmark over 15-and 20-year trailing averages as a cross check for its estimates for embedded debt and sets an allowance for new debt costs relative to an iBoxx A/BBB 10+ benchmark^[3], and the CMA performed its own financeability analysis with reference to a Baa1 target in its Provisional Findings^[4].

A weakening of support for Baa1/BBB+ would be viewed negatively by debt investors and credit rating agencies and could lower their assessment of regulatory consistency. Additional debt costs would ultimately be passed on to consumers. The average credit rating of constituent bonds in the iBoxx £10+ utilities index in September 2024 was slightly stronger than BBB+. A move to a rating of BBB for Network Operators would therefore require an uplift to the cost of debt allowance.

Given Ofgem’s focus on Financial Resilience, and the need to attract a significant level of investment into the sector, there is a need for strong credit metrics to ensure companies are financeable. We therefore firmly consider that Ofgem should target a BBB+ credit rating in its RIIO-ED3 Financeability assessment.

^[1] RIIO-2 Draft Determinations – Finance Annex, Ofgem, 9 July 2020, paragraph 5.17.

^[2] RIIO-ED2 Final Determinations Finance Annex, Ofgem, 30 November 2022, paragraph 5.27.

^[3] Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations Final report, CMA, 17 March 2021 paragraphs 89, 90,

² Ofgem, RIIO-3 SSMD, Finance Annex, July 2024, para 5.32

³ Ofgem, RIIO-3 SSMD, Finance Annex, July 2024, para 5.33

[4] Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations Provisional findings, CMA, 29 September 2020, paragraph 10.91

Q47. What are the key factors (including benefits and costs to consumers) that Ofgem should take into consideration when conducting its review of the appropriate approach to regulatory depreciation in ED3 and beyond?

Key messages:

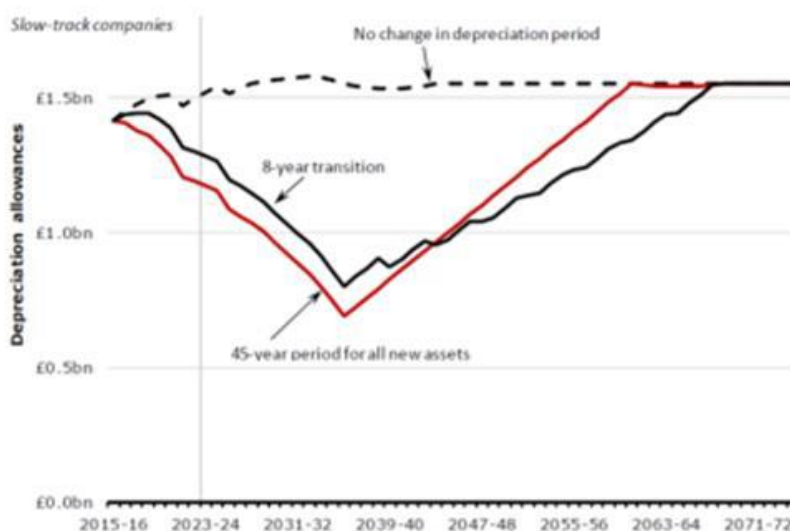
- Asset lives are a key financial parameter in the price control and NGED welcomes a review of asset lives in RIIO-ED3.
- As a result of changes to asset lives in RIIO-1, depreciation charges in RIIO-ED3 under Ofgem's current approach will not be cost-reflective, significantly impacting intergenerational fairness and financeability.
- Coupled with increased uncertainty over the useful economic life of assets, this means that 45-year, straight line, depreciation may not be the most appropriate approach going forwards.

Asset lives are a key financial parameter in the price control and we welcome a review of asset lives for ED3. However, it is more complex than simply considering economic asset lives in isolation.

As part of Ofgem's 2011 review of asset lives, Ofgem adopted the lower end of CEPA's estimated range of economic lives of 45 to 55 years, transitioning over the 8-year RIIO-1 period. This change creates a trough in the depreciation charge for DNOs, as the 20-year depreciation runs out but the 45-year depreciation is still building up to 45 years' worth of additions.

The transition from a 20-year to 45-year asset lives at RIIO-1 has the effect of materially reducing depreciation charges relative to the cost-reflective depreciation charge over ED3 and beyond, as demonstrated by Ofgem's analysis submitted at RIIO-ED1 appeals.

Figure 7: GEMA's analysis of the long-term effects on depreciation of the change in asset lives



Source: Ian Rowson witness statement, presented in Fig.9 of *Understanding Asset Lives – Save Now, Pay Later?* Grid Edge, January 2022

GEP *Understanding Asset Lives* 260122.pdf ([ofgem.gov.uk](https://www.ofgem.gov.uk))

A report by NERA for the ENA further demonstrates this disconnect by setting out evidence that, prior to RIIO-1, the depreciation charge broadly reflected capex levels, but the depreciation charge falls significantly below this in RIIO-ED3 and only recovers in the 2060's, even when capex is held constant at ED2 levels. A cost-reflective depreciation charge should broadly reflect capex over long time periods[1].

Intergenerational fairness and consumer value

The reduction in depreciation charges relative to cost-reflective depreciation has created an inter-generational equity problem as this 'depreciation holiday' means depreciation paid by current customers does not represent an appropriate portion of RAV additions. Extending asset lives also significantly increases the size of the RAV and the consequent amount of financing costs customers will pay in returns. The NERA report for the ENA estimates this could result in 10% higher network charges by 2070 relative to charges based on cost-reflective depreciation[2], with no difference in service levels received but simply as a result of previous policy decisions. This higher RAV brings other challenges, given that it is a financial asset representing the money still to be recovered from consumers, and therefore the larger the RAV, the larger the value of debt and future repayments through depreciation associated with this.

Technical asset lives

There is further evidence that increased uncertainty over the useful economic life of assets as the pace of change accelerates means that 45-year, straight line, depreciation may not be the most appropriate approach. Alternative depreciation approaches may better reflect this, especially given increased uncertainty recognised by Ofgem in the Framework Consultation around the distribution connected supply and demand on network capacity requirements, and investment ahead of need. If there is less confidence that an asset built today will deliver as much value in 45 years as it does now, that reinforces the need to consider the method of depreciation.

Examples of this increased uncertainty in ED3 may include:

- the economic life of increased upstream reinforcement from connecting solar farms is less certain, given landowners may repurpose land/return it to agricultural use and comparably shorter lives of solar panels;
- the impact of climate change (heat, wind events) on overhead lines which may mean replacement/redesign is required earlier than anticipated (e.g. the required distance between wood poles);
- increasing investment in shorter lived IT assets. We note that the potential future increase in the mix of shorter life economic assets was a factor Ofgem considered in its 2011 review of asset lives, and this is equally, if not more, relevant for any review as part of ED3.

Financeability

We also note that the depreciation allowance is an important financeability lever, which is NPV neutral for customers. The NERA report for the ENA also shows that, excluding the impact of changes as a result of the introduction of a semi nominal cost of debt, credit metrics deteriorate rapidly in RIIO-ED3 and RIIO-ED4 and remain depressed during the "depreciation holiday" period, and the adoption of semi-nominal WACC offsets at most half of the effects of the 'depreciation holiday' on credit metrics[3]. More cost reflective depreciation charges would improve financeability metrics over the energy transition.

One solution which may resolve, at least in part, the intergenerational equity problem created by the asset life extension from 20 to 45 years is the introduction of a sum of digits approach to depreciation. Further, as set out above, there is also evidence to support sum of digits depreciation

from an asset perspective. Front loading depreciation can address the increased uncertainty over economic value over time; a sum of digits approach would see higher depreciation charges in the period where the value is more certain and lower charges for the more uncertain time periods.

In conducting its review, it is important that Ofgem is mindful that the RAV is a notional concept and does not correspond to a list of assets, but rather it was set as the market value of assets at capitalisation, contains both Operating and Capital expenditure, and that, through the Totex Incentive Mechanism, the RAV also contains incentive revenues which have no corresponding expenditure, where companies underspending Totex allowances retained a share of the underspend, a proportion of which was added to the RAV. As such, there is a disconnect between the RAV and the underlying assets, and it is therefore important that any consideration of economic lives is therefore balanced with wider considerations set out above.

Mindful that depreciation allowances make up a significant proportion of revenues, it is critical that any change to depreciation or asset lives results in regulatory depreciation allowance that is appropriate. Ofgem must fully consider the impact of any changes to depreciation and/or asset lives, how this would be implemented, and whether this would only apply to new additions to RAV, including the overall cost to customers, the impact on financeability metrics and the interaction between asset lives and real / nominal returns.

[1] Q47, footnote 1: Slide 16, Depreciation Policy for RIIO-ED3; A report for the ENA, NERA, 15 January 2025

[2] Q47, footnote 2: Slide 6, Depreciation Policy for RIIO-ED3; A report for the ENA, NERA, 15 January 2025

[3] Q47, footnote 3: Slides 25; 27-28, Depreciation Policy for RIIO-ED3; A report for the ENA, NERA, 15 January 2025

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?

Key messages:

- The benefits of DSO include lower balancing costs by providing access to the wholesale and NESO markets for distribution connected flexibility, reduced carbon emissions from faster renewable connections and demand-side flexibility, more efficient network use via improved planning, and reduced operational costs through better real-time situational awareness, clear standards, and strong governance.
- It is important that the DSO incentive mechanism is retained and augmented. We continue to see a role for the survey and panel assessment but we also see a much greater role for quantitative incentives which reflect the benefit that the DSO delivers to consumers. In addition, we see a requirement to build on the transparency of investment decision making and load related expenditure using the published Distribution Network Options Assessment and the application of a Common Evaluation Methodology which underpins all investment decisions enhanced to ensure whole system impact is considered during that decision making.

It is important that the DSO incentive mechanism is retained and augmented, and this should continue to retain a survey and panel assessment. However, we also see a much greater role for quantitative incentives which reflect the benefit that the DSO delivers to consumers. Such quantitative metrics are important to drive consistent good practice across DSOs. Work will be required to quantify the benefits and design appropriate incentive mechanisms. Some of these benefits include:

- Lower balancing costs by providing access to the wholesale and NESO markets for distribution connected flexibility.
- Reduced carbon emissions of the system from accelerated connection of renewables and use of demand side flexibility for system balancing.
- More effective use of the available network through improved planning assumptions. This allows more assets to connect whilst maintaining a safe, secure network.
- Reduced costs of operating the network through: better situational awareness of the network in real time; clear operating standards underpinned by strong processes and governance; and a strong operational 'toolbox' to manage system issues.
- Utilising increased amounts of measured and observed data to improve network planning assumptions and facilitate network access for consumers.

In addition, we see a requirement to build on the transparency of investment decision making and load related expenditure. DSOs all have all published Distribution Network Options Assessment publications using a Common Evaluation Methodology which underpins all investment decisions. This assessment can be enhanced to ensure whole system impact is considered during that decision making. This will effectively showcase the 'planning and network development' role of the DSO by demonstrating the direction of the load related investment programme and give stakeholders greater clarity of how allowances are spent. When considering whole system investments NESO (in their role to deliver RESP) can convene multiple licensees and identify areas where the Coordinated Adjustment Mechanism could be used.

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

Key messages:

- DSOs should focus on demonstrating how additional capacity in distribution networks can benefit consumers through efficient management of network loading risks via targeted investments and non-build solutions. There is a need for coordination across multiple investment drivers (e.g., asset replacement and Clean Power 2030 objectives) to ensure alignment across vectors and licensees. Additionally, the methodology for quantifying whole system benefits should be expanded to include demand-side flexibility and broader impacts like jobs and economic value.
- Ensure that DSOs play a central role in identifying and delivering whole system benefits, with a focus on coordinating investments across areas and licensees. There is an important role for DSOs to play in ensuring that significant investment decisions that affect multiple licensees are made in a coordinated manner to demonstrate where DSOs are actively engaging other parties in key investment decisions. Strengthening the coordination between DSOs, NESO, and RESP to align investments and identify whole system opportunities. Expand the methodology for capturing whole system benefits, including incentivising demand-side flexibility and assessing the wider impacts of reinforcement programs, such as on jobs and economic growth. Co-ordination of markets will become increasingly important in ED3 as the amount of flexible assets connected to distribution networks increases ensuring that flexibility assets have access to the widest possible set of flexibility income streams through the practical ability to access the relevant markets.

We believe, in the context of whole system benefits, the role of the DSO should be focused on, demonstrating where additional capacity created across distribution networks can add value for consumers, and how to manage the network loading risk through efficient direction of capital

expenditure and non-build solutions. We believe there is an important role for DSOs to play in ensuring that significant investment decisions that affect multiple licensees are made in a coordinated manner. NESO (in their role delivering RESP) can act as a convener of discussions, but it is up to the individual licensees to identify these opportunities. The Whole System Coordination Register should be used to demonstrate where DSOs are actively engaging other parties in key investment decisions.

There is also a whole system benefit in identifying work undertaken across adjacent work programmes within the price control. Whereas the existing categories of work (for example, asset replacement) incentivise like-for-like replacement (including an efficiency challenge), the DSO can outline how decisions made for other investment drivers deliver against a long-term decarbonisation pathway.

Co-ordination of markets will become increasingly important in ED3 as the amount of flexible assets connected to distribution networks increases. This benefit will ensure that flexibility assets have access to the widest possible set of flexibility income streams not just in theory from stack-ability but through the practical ability to access the relevant markets.

In question 48 we outline some specific benefits that should be considered as quantitative measure of DSO performance. Quantifying the magnitude of the whole system benefits and rewarding appropriately will be important for delivery. We acknowledge the ongoing work by DSOs to quantify the whole system benefits that we currently deliver in ED2, which can be used as a starting point.

Q50. Our historic approach to publishing and sharing datasets has been stakeholder led and focused on establishing good digital foundations in the DNOs. With the rapid pace needed for enhanced data and digitalisation, should we instead be considering incentives around strategic priorities, such as network planning, flexibility, and connections?

Key messages:

- Anticipated levels of collective DNO data maturity may not be fully realised by the end of ED2, digital infrastructure faces challenges in scaling to meet the increasing data requirements. ED3 must build upon the progress of ED2 by continuing to drive foundational data capability development before shifting focus to advanced capabilities. Without this sustained focus, the sector risks falling short in establishing the necessary data and digital foundations. Digital and data developments must prioritise the customer, tailoring solutions to meet their diverse needs and ensuring inclusivity.
- We are supportive of incentives linked to strategic outcomes, as they focus efforts on delivering key priorities and driving meaningful progress. ED3 should include industry wide frameworks underpinned by standards and protocols. Stronger incentives for strategic outcomes (i.e. strong digital foundations, high-quality data, scalable platforms) and collaboration/innovation will be necessary for DNOs to accelerate innovation, enhance operational efficiency, and deliver improved customer satisfaction, greater network resilience, and measurable interoperability.

We acknowledge Ofgem's historical approach to enhancing data and digitalisation through the ED2 framework. Initiatives such as the Smart Optimisation Output Licence Obligation (SOOLO), put clear focus on developing digital tools and sharing data through a System Visualisation Interface (SVI), and ensuring this is guided by effective stakeholder engagement. Regulations such as Ofgem Data Best Practice (DBP) principles have undoubtedly guided and progressed DNO data sharing and have been necessary to establish DNO open data portals. Furthermore, we recognise Ofgem's

support for transformative developments, via consultations, such as an energy system Data Sharing Infrastructure (DSI), and Consumer Consent Solution. We believe these will be critical capabilities to support the continued digitalisation of the energy system.

Whilst Ofgem's approach for ED2 has provided a strong foundation for data and digitalisation, we believe that the anticipated levels of collective DNO data maturity may not be fully realised by the end of ED2. DNOs are addressing data related challenges differently, resulting in inconsistent solutions, misalignment, and ongoing interoperability issues. These gaps highlight that Ofgem's expectations for data capability development may be overly optimistic. ED3 must build upon the progress of ED2 by continuing to drive foundational data capability development, ensuring robust and consistent frameworks are in place before shifting focus solely to advanced capabilities such as Machine Learning (ML) and Artificial Intelligence (AI). Without this sustained focus, the sector risks falling short in establishing the necessary data and digital foundations.

The current digital infrastructure in DNOs was originally developed for a simpler energy landscape. As a result, it faces challenges in scaling to meet the increasing demands of data volume, velocity, and variety. This is driven by the proliferation of connected devices like smart meters, electric vehicles, and Distributed Energy Resources (DER), alongside the increasing need for real-time, data-driven decision-making across interconnected systems. Furthermore, rising customer expectations for personalised solutions, faster response times, and seamless integration of smart technologies expose the limitations of current systems.

To address these challenges in ED3, further foundational work will be required. Platforms, systems, and data capture must be continuously improved to manage the exponential growth in data volume and complexity while supporting future advancements. Industry-wide frameworks underpinned by open standards and protocols will be critical to enhancing interoperability and enabling seamless communication across DNOs. Incentivising collaboration is vital to aligning approaches and sharing best practices, supported by mechanisms such as innovation marketplaces where innovation can be shared easily with DNOs. Integrating emerging technologies, including AI, machine learning, and IoT, will further enhance forecasting, operational efficiency, and decision-making capabilities. Success should be measured using clear, actionable metrics such as interoperability audits, customer satisfaction improvements, and the successful implementation of shared data platforms. Stronger incentives and regulatory alignment will be necessary to reward collaboration, innovation, and the delivery of strategic priorities. Together, these steps will drive consistency, efficiency, and measurable progress, forming the foundation for a resilient, adaptable, and future-proof energy system.

We believe digital and data developments must prioritise the customer, tailoring solutions to meet their diverse needs and ensuring inclusivity. Further work and focus are required to improve the customer's digital experience. Developing omni-channel platforms, such as mobile apps, web portals, and automated systems, would enable customers to access services through their preferred methods. Using customer personas to inform design, these platforms can address the specific needs of all groups, including vulnerable customers. Prioritising accessibility will enhance satisfaction and engagement, supporting a more equitable and responsive energy system. Specific performance metrics and incentives should be introduced to drive customer-related outcomes.

Finally, we are supportive of incentives linked to strategic outcomes, as they focus efforts on delivering key priorities and driving meaningful progress. Almost all strategic outcomes will rely in some way on strong digital foundations, high-quality data, scalable platforms, and modernised regulatory reporting. Incentives should also extend beyond network outcomes to encompass AI-enabled data platforms, improved data quality, and foundational capabilities. By targeting both foundational and strategic areas, DNOs can accelerate innovation, enhance operational efficiency,

and deliver improved customer satisfaction, greater network resilience, and measurable interoperability. These steps are key to ensuring the energy system remains adaptable to future challenges and achieves critical milestones by the end of the ED3 price control period.

Q51. How can we enable greater development of internal digital expertise in its licensees?

Key messages:

- Necessary to prioritise targeted investment in workforce development and the creation of training initiatives that focus on critical skills. We advocate the creation of comprehensive training initiatives that focus on critical areas such as data analytics, cybersecurity, digital project management as well as emerging technologies.
- Regulatory support needed to developing digital skills to enable licensee digital expertise, including performance-based incentives to encourage investment in digital alongside reporting metrics to monitor and drive continuous improvement. NGED are keen to collaborate with Ofgem to design performance-based incentives that encourage investment in digital and innovation.

We recognise the growing importance of digital expertise within the energy sector, particularly as the pace of technological change accelerates. While previous initiatives under the ED2 framework have laid a good foundation for advancing digitalisation, this is not a one-time-only activity and should be viewed as a program of continuous development.

To build internal digital expertise, it is necessary to prioritise targeted investment in workforce development. We advocate for the creation of comprehensive training initiatives that focus on critical areas such as data analytics, cybersecurity, digital project management, and emerging technologies like Artificial Intelligence (AI) and the Internet of Things (IoT). These initiatives should be complemented by continuous professional development including certifications, e-learning, and workshops.

We acknowledge the importance of implementing a robust development infrastructure to foster organisational growth. To achieve this, we will continue to build a comprehensive development framework, focusing on cultivating internal digital expertise across the entire company, rather than limiting it to IT&D.

Our journey begins with establishing the foundation for a development-centric culture. This involves defining a clear vision for development, articulating its significance to NGED, and linking development goals to our mission and business objectives. We will model continuous learning as a cornerstone of this approach.

Key actions include creating a structured learning and development strategy with clear pathways for upskilling and reskilling employees. This involves identifying suitable training providers and investing in e-learning platforms such as Pluralsight and Udemy. We will place particular emphasis on enhancing digital capabilities essential to market-leading companies and critical to NGED's success. These include cloud computing, cybersecurity, and data analytics. Additionally, we will invest in certifications and skills development, ranging from basic training in digital tools and data literacy (e.g., QuickSight and Google Analytics) to advanced technical proficiencies.

To foster a culture of learning, growth, and collaboration, we will host initiatives such as workshops, lunch-and-learn sessions, hackathons, and the creation of an academy with sandbox tools for

practising theories, testing ideas, and demonstrating results. Furthermore, we will implement a mentorship programme to enhance skill-sharing and professional growth. As part of this framework, we will also institute regular one-to-one evaluation meetings and personal development plan reviews to ensure ongoing progress and alignment with individual and organisational goals.

Equally important is the need to attract and retain digital talent. Offering competitive compensation, clear career progression, and professional growth opportunities will help ensure a stable and motivated workforce. Regulatory support for developing people-centric initiatives that integrate industry-specific expertise with advanced digital skills will further support continued energy system outcomes.

A cultural shift towards digital-first thinking is key to success. This requires visible leadership commitment to champion digital initiatives, setting clear priorities, and emphasising the strategic value of digital expertise. Encouraging innovation and experimentation, coupled with mechanisms to recognise and reward contributions, will encourage DNOs to embrace digital transformation confidently.

Embedding a data-centric mindset within DNO businesses by appointing data champions and integrating data-driven decision-making processes into daily operations is a key enabler. This approach fosters ownership and accountability for digital outcomes. Cross-sector collaboration will be vital to accelerating digital capability development. NGED supports fostering partnerships with technology firms, academic institutions, and industry groups to share best practices, exchange knowledge, and drive sector-wide innovation. Establishing common standards and protocols will enhance interoperability and efficiency, aligning efforts across licensees.

Modernised infrastructure is the cornerstone of effective digital transformation. NGED recommends upgrading legacy systems to support scalability, security, and compatibility with new technologies. This includes adopting advanced tools like cloud-based platforms and leveraging AI and machine learning for enhanced decision-making and operational efficiency. Robust cybersecurity measures and training will protect critical systems and build organisational resilience.

Finally, aligning digital initiatives with regulatory frameworks is crucial. NGED suggests working closely with Ofgem to design performance-based incentives that encourage investment in digital expertise and innovation. Transparent reporting and clear metrics will enable benchmarking and continuous improvement. These efforts will not only empower NGED but will also cultivate a digitally proficient workforce, enabling us to attract, build, and retain market-leading talent.

Q52. How should network companies use AI to improve network insight and decision making (both operating expenditure (opex) and capital expenditure (capex)) and how should we be encouraging this through the ED3 framework?

Key messages:

- AI offers the potential to process and analyse large volumes of complex data in real time, providing actionable insights that drive efficiency and resilience.
- NGED recommends that Ofgem introduce targeted incentives under the ED3 framework. Mechanisms such as innovation allowances and performance-based rewards can drive investment in AI solutions while fostering competition and innovation among licensees.

The use of Artificial Intelligence (AI) represents a transformative opportunity for the energy sector, offering the potential to optimise network operations and enhance decision-making. As we look

ahead to the ED3 price control period, AI's role should be viewed not as a standalone tool, but as an integral component of a forward-looking, data-driven strategy to meet the challenges of a decarbonising energy system. NGED believes that harnessing AI effectively will require targeted investments, collaborative innovation, and a strong alignment with customer priorities.

AI offers the potential to process and analyse large volumes of complex data in real time, providing actionable insights that drive efficiency and resilience. In operating expenditure (Opex), AI can enhance predictive maintenance, identifying potential asset failures before they occur, minimising downtime, and extending asset lifespans. For capital expenditure (Capex), AI tools can optimise network design by forecasting future demand patterns, improving the efficiency of investment decisions, and ensuring infrastructure is developed in line with net zero targets.

To unlock these benefits, we advocate investment in modern data infrastructures that can support AI integration. High-quality, secure, and interoperable data platforms are essential to enable AI tools to deliver reliable insights. Furthermore, AI applications should prioritise customer-centric outcomes to deliver tangible benefits that align with customer needs and expectations.

To encourage the adoption of AI across the sector, NGED recommends that Ofgem introduce targeted incentives under the ED3 framework. Mechanisms such as innovation allowances and performance-based rewards can drive investment in AI solutions while fostering competition and innovation among licensees. Establishing clear performance metrics that assess AI's impact on operational efficiency, network resilience, and customer satisfaction will provide transparency and accountability, ensuring that AI delivers measurable improvements.

AI innovation can be accelerated through collaboration across the sector. NGED supports the development of partnerships between DNOs, technology providers, academic institutions, and industry bodies to co-develop AI solutions, share expertise, and establish best practices. Standardisation of AI tools and protocols could enhance interoperability, enabling the entire sector to benefit from shared advancements.

AI must deliver clear benefits for customers. Developing applications that improve fault resolution times, provide real-time updates, and offer personalised energy management solutions will significantly enhance customer satisfaction. Ensuring inclusivity by designing AI-driven tools that are accessible to all, including vulnerable customers, is critical to delivering equitable outcomes.

While AI offers transformative opportunities, it also introduces risks that must be proactively managed. Key challenges include ensuring data privacy, mitigating biases in algorithms, and safeguarding against cybersecurity threats. We believe that robust regulatory oversight is essential to address these concerns. Ofgem could establish guidelines for ethical AI use, mandate transparency in AI decision-making processes, and require regular audits to ensure compliance. Introducing reporting mechanisms on AI deployment and performance will provide accountability and build stakeholder trust. By facilitating a framework that prioritises safe, ethical, and secure AI use, the regulator can ensure that AI technologies are deployed responsibly, maximising their benefits while minimising potential risks to customers and the energy system.

Integrating AI into Opex and Capex processes will enhance decision-making, optimise network performance, and improve customer experiences. By aligning AI initiatives with regulatory frameworks and encouraging collaboration, the ED3 framework can help unlock the potential of AI. We are committed to working with Ofgem and stakeholders to ensure that AI adoption drives meaningful transformation and supports the transition to a net zero energy system.

Q53. Our aim is for the ED3 framework to be structured to deliver high impact, transformative innovation – do you think that further changes, alongside those proposed for the other sectors in our RIIO-3 SSMD, are required to deliver this?

Key messages:

- A gap remains in the transition from successful innovation projects to full-scale deployment. Developed outcomes and capabilities from innovation projects can sometimes struggle to move beyond pilot stages due to barriers within the regulatory frameworks.
- The current five-year price control cycle can create challenges for aligning investment decisions with long-term strategic goals. ED3 should explore providing extended regulatory signals to empower networks to make transformative, large-scale investments.

We agree and fully support the proposed structure of the ED3 framework to drive transformative innovation across the energy sector. Building on the progress made under previous price controls, ED3 presents an opportunity to address key challenges, advance digital capabilities, and ensure that innovation delivers significant and measurable outcomes for customers and stakeholders.

However, we also believe that a gap remains in the process to transition from successful innovation project to full-scale deployment. Developed outcomes and capabilities from innovation projects can sometimes struggle to move beyond pilot stages due to barriers within the regulatory frameworks. We suggest that ED3 should introduce mechanisms that support the scaling of innovations during and across price control periods.

Flexible funding pathways and incremental deployment models can enable operators to deliver value progressively whilst managing deployment risks effectively. These approaches will ensure innovation delivers measurable benefits to customers and stakeholders more rapidly.

In addition, we believe the current five-year price control cycle can create challenges for aligning investment decisions with long-term strategic goals. These challenges may be mitigated if in ED3 Ofgem explores providing extended regulatory signals to empower networks to make transformative, large-scale investments confidently. These signals will need to reflect the diversity of innovations that will need to be rolled out to deliver the capabilities of the future, and provide pragmatic and agile methods to drive and fund roll out.

This would be in contrast to today's arrangements, which promotes waiting for the next price control or fixed re-opener, to enable roll out of new capabilities or consumer offerings. We do recognise the presence of the Totex Incentive Mechanism and other signals, such as the IIS, but suggest that these are only effective at driving gradual and low ambition innovation roll out. To be able to drive transformative change we will need frameworks that:

- Provides long-term signals for how we need transform our capabilities and customer offerings.
- Provides roll out and scaling pathways that are appropriate to the differing varieties of innovation roll out and capability build that we want to commit to.

Q54. Are there any factors particular to DNOs that facilitate or challenge deployment of innovation on their own and across networks?

Key messages:

- NGED are supportive of the current SIF/NIA as a vehicle to initiate innovation and these should continue. However, these current mechanisms focus on development & readiness of technological solutions but do not always facilitate scaling up and deployment at scale and their deployment may be stifled through the application of the current Totex Incentive Mechanism. Networks need to develop technology readiness and be able to scale the capability models to deliver network benefits.
- Scaling up and deployment needs to be considered under future regulatory frameworks with a longer-term view to aid the deployment of transformation innovation. We would encourage Ofgem to consider improved frameworks for networks that promote the ability for networks to commit the resources required for high volume roll out of transformational concepts

The deployment of innovation within DNOs and DSOs is a critical enabler of the transformative change envisioned for the energy sector. However, DNOs face a unique set of opportunities and challenges that influence their ability to innovate and deliver benefit effectively. These factors must be carefully considered within the regulatory framework to ensure their full potential is unlocked and deliver meaningful outcomes for customers and the wider system. To unleash transformative growth, networks need to not only grow the technology readiness items that underpin day-to-day operations, but they also need to be able to scale the capability models that can turn technology and insight into benefit across the network.

The NIA and SIF mechanisms enable networks to work towards raising the technological readiness of solutions. We observe that NIA and SIF allow networks to test concepts that we would not otherwise fund because they address questions not within the scope or time horizon of the current price control. We also observe that these mechanisms promote a healthy competition between networks to demonstrate different methodologies and then adopt the best ones. As an example, we conducted a pre-fix project, which was then considered by other networks in the Storm Arwen re-opener. As an alternative, UKPN did early work on Low Carbon Electric's Phase Switch Project and we have now adopted this concept and are working with UKRI on the SIF project to increase its readiness for service.

However, we propose that there needs to be a greater consideration of how scale up and deployment happens in the present regulatory model. To be able to scale up a high impact innovation, there needs to be transformation across all parts of a network and its supply chain.

To be able to deliver capability transformation a network needs to:

- Have the organisation capacity to be able to deliver change management at the same time as delivering the steady state regulatory deliverables.
- Have a clear understanding of the risks carried and how they will be shared as it progresses an innovation through to full readiness.
- Be able to fund the scale up and roll out.
 - We are aware that there has been a preference for networks to fund roll out of innovation via the TIM. We believe that this preference blocks innovation rollout for two reasons.
 - Firstly, there can be tensions within the price control which can block the use of the TIM to fund some innovation investments that could provide value to customers. As an example, the Secondary Delivery Reinforcement Driver introduced five flags to indicate inefficient investment. There were a number of

innovations from work in ED1 that could provide benefit in this area. However, the effect of the five flags was to inhibit confidence in the use of the TIM to roll out some of these beneficial innovations, as they appeared to worsen the inefficient investment flags, despite having a beneficial effect on headroom. We propose that simpler and cleared frameworks that encourage scale up and roll out of transformative concepts would be a more effective driver of the desired change than the TIM.

- Secondly, a 5-year regulatory cycle is a short space to deliver innovation scale up and then recover an investment benefit ahead of the next price control. The ability to take a longer-term view on scale up and roll out would aid the deployment of transformation innovation.
- We would encourage Ofgem to improve the frameworks to enable networks to commit the resources required for high volume roll out of transformational concepts and gradually take on more risk, rather than the current gap between innovation stimulus and roll out as experienced at present.

Resilient and sustainable networks

Q55. Do you agree that we should retain the Network Asset Risk Metric (NARM)? How should it further evolve in ED3?

Key messages:

- NARM should be retained but requires updated to consider broader and longer-term drivers of asset management. We must ensure that competing and coincident drivers for investment are considered collectively whenever we work with our networks and assets. Incorporating multiple drivers into a monetised risk measure would be a logical extension.
- We would support and contribute to a longer-term road map for NARM evolution and development. This would allow DNOs to reduce future reliance on assumption as set out above and allow time to adapt investment strategies, and by extension regulatory models alongside the development of the metric.

The NARM is well understood within DNOs, as it establishes a relatively simple connection between asset investment and risk reduction benefit delivered. Monetised risk, drawn from a common model enables comparison between operators and allows for collaboration around methods of basic risk measurement and management. The utilisation of the NARM metric, or similar baselining tool, is deemed necessary for future price controls, however, in its current format, we do not believe that NARM is fit for purpose for application in future price controls in its current form. Adjustments to the current NARM metric should maintain a simple, comparable measuring tool whilst introducing appropriate measures that allow for more integrated investment decisions and longer-term planning to meet the increasing needs of consumers. There is a tension here, as increased volumes of work across asset health, load and connections mean we will engage with the network more frequently. We must therefore, ensure that competing and coincident drivers for investment are considered collectively whenever we work with our networks and assets. Incorporating multiple drivers into a monetised risk measure would be a logical extension, however this may not be the same mechanism, featuring the relative simplicity of the current metric.

The development of NARM and predecessor measures has been undertaken collaboratively across the sector, and DNOs and we believe this model should persist for further developments. The extension of the scope of NARM to a wider set of asset classes is currently subject to industry discussion; we are of course engaged in this actively. Assets beyond the scope of the current NARM methodology are typically those where inspection and condition observation is more challenging or where asset data has been more difficult to obtain and make use of in decision making. Modelling approaches are therefore, likely to require an increasing level of assumption to be made and may introduce uncertainty in decision making and delivery programmes. We do not believe that an extension of this nature would enhance the metric. Careful consideration should be given to determine the terms under which the metric will no longer be fit for the purposes it was intended.

We would support and contribute to a longer-term roadmap for NARM evolution and development. This would allow DNOs to reduce future reliance on assumption, as set out above, and allow time to adapt investment strategies, and by extension regulatory models alongside the development of the metric. However, it should be noted that any future development of NARM must take into account the essential requirement to improve the network ahead of need. In addition, investment decisions must take into account future impacts, such as those predicted from climate change, whilst facilitating an efficient and agile programme which will endeavour to integrate different investment drivers into an optimised set of network activities.

We believe the metric requires improvement in order to align with the changing context in which it may operate. We would seek to ensure that greater consideration of both system planning opportunities related to load and connections driven asset investment, in addition to taking a more holistic view of risk management beyond asset replacement and refurbishment, is considered. It should also take a consideration of longer term, whole life cost and drivers of asset management interventions.

Q56. Do you agree that we should consider a more integrated approach to managing asset health, together with load-driven expenditure, given the need to future proof for resilience climate, cyber and physical security) and future demand? What might the risks and benefits of this approach be?

Key messages:

- NARM currently drives decisions prioritising lowest cost risk reduction which may not account for future needs, networks need asset replacement investment which is forward looking
- More sophisticated approaches to asset management, including integrating inputs and outputs would be desirable; The implementation of the RESP framework will allow us to take a longer-term view of demand driven investment which, married to longer term asset health approaches enables greater temporal optimisation of our portfolio of asset interventions, across multiple regulatory periods. We would also like to employ a value framework that captures multiple drivers and that encourages investment ahead of need
- The ED3 framework needs to be flexible to evolving customer needs and environmental factors, promoting intervention strategies that focus on long term goals (e.g. capacity, LCT adoption, resilience. RESP will inform plans, encouraging delivery of large-scale network capacity, but ED3 framework also needs to allow progressing “no regret” investment decisions in areas of growth whilst also focusing on worst served customers and peripheral parts of the network.

Developing a multi-driver, multiple outcome approach is timely. Several periods of risk targeted investment and continuous improvement in risk management has been beneficial, however, more sophisticated approaches to asset management, including integrating inputs and outputs would be desirable. While the suite of interventions at our disposal has also become more sophisticated, the increasing demands of our network and the complexity of the environment in which we operating represent a challenge for these capabilities. A regulatory approach that encourages the development of a more holistic view of investment drivers and incentives integration would help us to address this range of complex and interrelated challenges.

We acknowledge the continuing need to provide significant asset health investment, while taking opportunities to address future capacity demands, net zero changes, increasing use of LCT, and increased network performance stresses associated with climate change. While some elements are as yet unforeseeable, there are many circumstances where integrated investment would be significantly beneficial or at best a simple, marginal cost no regrets solution.

The implementation of the RESP framework will allow us to take a longer-term view of demand driven investment which, married to longer term asset health approaches, enables greater temporal optimisation of our portfolio of asset interventions across multiple regulatory periods. We would also like to employ a value framework that captures multiple drivers and encourages investment ahead of need. This could reduce the relative amount of like-for-like asset replacement as the principle element of asset health activity; an integrated approach to decision making and delivery would certainly support this aim.

We agree that multiple drivers for investment should be considered within a more integrated approach to managing assets as:

- Increasing flexibility in delivery will allow us to better address future uncertainty across multiple themes and take a longer-term view of these.
- Integration and portfolio level optimisation has the potential to increase efficiency of capital investment and operational activity.
- A multi-driver model will allow us to demonstrate value delivered beyond service provision and risk.
- Moving beyond current value drivers will allow us to better meet the needs of customers serviced by less critical elements of our networks, and to demonstrate the value brought to these customers.
- Larger, longer term and integrated programmes would aid supply chain and resource planning and reduce costs and cost risks.

This will require increased sophistication in our regulatory framework, and this may be considered a risk. Demonstrating benefits will require a more complex approach than today and would likely necessitate a move towards a more outcome-based model of regulation. It is unlikely, for example, that the simplicity found in NARM (see question 55 response) could be replicated in a true multi-driver, multi-outcome integrated approach, however we do not consider this to be a significant risk nor an insurmountable barrier.

Q57. In the context of making anticipatory investment decisions, what do network companies and other stakeholders need to enable the planning and delivery of cost-effective network resilience measures against our changing climate? What risks and opportunities do you see linked to an input-based approach to these investment plans?

Key messages:

- Climate resilience adaptations will need anticipatory investment if resilience levels are to be maintained
- Further research will be required to understand hazards and impacts to help identify suitable climate resilience targets and metrics to support monitoring. Ofgem should consider incentive mechanisms for adaptations and support the development of research to better identify hazards, impacts, and appropriate resilience metrics.

Although more is known around the impact of climate events, Ofgem have indicated they wish DNOs to go beyond an events-based view of resilience (i.e. the average day becoming more taxing on network assets). Investment decisions need to be made based on long-term projections, potentially looking to the mid-century and beyond, if resilience levels are to be maintained.

We believe further research is required to quantify the impact of climate change variables on network assets to enable the creation of cost benefit analysis tools, which take climate resilience into account and establish the appropriate climate resilience standards that network companies can build to and operate within; both of which must be developed to enable a long-term, multi-price control lens to investment decisions.

In order to progress towards this goal (as detailed in question 58) Ofgem first needs to define the terms, scope and standards. Secondary to this, detailed research needs to be conducted, particularly around potential synergism between variables and delayed impacts.

Without this additional research there will be increased risk of over or under investment in resilience measures. Under investment, could increase the fragility of the network, and so increase the potential for and duration of supply interruptions. Over investment, would not represent the best

value for money for customers. Therefore, it is vital that this research is conducted so that the appropriate tools and KPIs can be developed to ensure climate resilience is a proportional driver to long-term investment decisions.

Whilst a more data-driven approach is developed, a combination of Adaptation Pathways and the best currently available information will allow decisions to be made despite the current high levels of uncertainty. To support this and future developments we will require:

- Centralised climate data to ensure consistency;
- Industry accepted levels of uncertainty to support investment decisions; and
- Ofgem to disclosure their expectations and intentions (i.e. are we expected to improve, maintain or accept reductions in climate resilience).

Q58. How should we monitor progress on the delivery of climate change resilience? Do you have any specific learnings which can help shape this?

Key messages:

- Introduction of a climate resilience metric (CRM) will be an important element of ED3 such as that being developed by the ENA.
- Additional research is required to ensure climate is a proportional driver when assessing network investment.

We are supportive of Ofgem's ambition to improve the electricity network's level of climate resilience; particularly the need to improve our understanding of the impacts of a changing climate on our network beyond severe weather events. As such we are keen to see the development an appropriate set of metrics to measure network resilience, taking into account the potential impact of climate change, which will enable the industry to manage the risk to network assets efficiently whilst helping the country meet the government's Net Zero ambitions.

One of the objectives of the ENA Climate Change Resilience Working Group (CCRWG) is to develop a Climate Resilience Metric (CRM). However, progress towards achieving this objective has proven challenging due to complexity and varied interpretation of key terms (e.g., 'Climate Change Resilience'). We believe that if Ofgem provided greater clarity around some of the key terms and desired scope this would go some way to unblocking the progress of the CCRWG. These include but are not limited to:

- Ofgem's definition of climate, climate change, and climate resilience.
- Whether Ofgem wishes networks to maintain, improve, or acknowledge there may be a reduction in the level of service.
- Who Ofgem wants the CRM to be used by and for what.
- Noting the inevitable regional variations of climate impacts, to what degree does Ofgem want to strive for the CRM to be standardised across all companies (and so limited in scope)?

The CCRWG presented a "Heads of Terms" document to Ofgem's Resilience Team detailing the group's assumptions in some of these areas, but the group have not received confirmation that these have been accepted by Ofgem.

In 2022, Newcastle University produced a paper as part of the first deliverable against an NIA project titled "Assessment of Climate Change Event Likelihood Embedded in Risk Assessment Targeting Electricity Distribution" (ACCELERATED). This project helped us begin to understand how

climate risk to our assets may change in the future by establishing the relationship between climate intensities and climate impacts by producing fragility curves. This study emphasised the need for a regional lens to climate resilience due to the degree of geographical variability within our licence areas. However, much more work is required in this area as this study focussed on a limited number of climate variables and for variables such as rain and temperature, due to lack of data, there is a question around the reliability of the fragility curves. Furthermore, the study did not consider potential synergism between variables or delayed impacts.

Taking into account the current position of the industry and the amount of further research required, we question whether we will be able to settle on the right metrics and targets in time for ED3, given the lack of research and associated data which will prevent us from; determining whether a metric is worth monitoring, establish historic benchmarking, and ultimately set appropriate targets. Without additional research we cannot ensure the climate is a proportional driver when assessing our network. Equally, Ofgem cannot assess whether network companies are investing in the right things at the right time.

We believe that further research into the impacts of climate variables on network assets (including potential synergism between variables) is a crucial next step. This will ensure we can effectively embed climate resilience into investment decisions and therefore safeguard network reliability while providing the best value for money for customers.

In the meantime, we are conscious of Ofgem's concern that "we are not on track to meet our energy system adaption needs" so, as an interim measure, to ensure the gap is bridged at pace, a qualitative, incentivised approach could be adopted with a view to start moving networks closer to an acceptable adaption pathway but also encourage research, development, and innovation which will allow for a set of quantitative KPIs to be implemented in ED4 and beyond.

Q59. Do you have any comments on the suitability of current incentives to ensure that consumers continue to receive a reliable service in the face of climate hazards?

Key messages:

- The current range of incentives do not directly or equitably aid network reliability in the face of climate hazards. IIS historical focus does not account for the average becoming more taxing on network assets due to climate change nor does NARM adequately consider or anticipate future climate challenges but focuses on the 'as is' state.
- A data driven, climate based targeted approach for activities could improve network resilience, need to develop metrics to measure network resilience, for introduction in ED4.

The current range of incentives do not directly or equitably aid network reliability in the face of climate hazards. The average customer may see some benefit through the IIS incentives, however in this context the scope and methodology are lacking:

- CI and CML targets are based on average service and therefore, incentivises DNOs to focus their efforts on the peak of the bell curve. This means that those that receive below average performance may fall increasingly behind in relation to network reliability/fragility.
- IIS is focussed on events (which may become more frequent and/or severe) but does not account for the average day becoming more taxing on network assets which could lead to an increase in supply interruptions.

- IIS calculations do not take into consideration of potential synergism between variables on the network or delayed impacts (e.g. increased ground movement over time from drought/flood events).

In addition, in future periods, we will be exposed to new hazards/risks not yet experienced in today's climate. Climate events such as heatwaves may become more common and impact areas once resilient to climate events, this may drive the need for exceptional event thresholds to be reconsidered.

As detailed in Question 58, we are keen to see the development of an appropriate set of metrics to measure network resilience, taking into account the potential impact of climate change, which will enable the industry to manage the risk to network assets efficiently whilst helping the country meet the government's net zero ambitions. However, we question whether as an industry we will be able to settle on the right metrics and targets in time for ED3, given the lack of research and associated data which will prevent us from; determining whether a metric is worth monitoring, establish historic benchmarking, and ultimately set appropriate targets. Without additional research we cannot ensure the climate is a proportional driver when assessing our network. Equally, Ofgem cannot assess whether network companies are investing in the right things at the right time. Therefore, given this gap and the pace at which it needs to be addressed, we believe that a new incentive mechanism, based on qualitative measures, may be appropriate with a view to enabling the development of meaningful KPIs, with appropriately benchmarked targets, to be sent in ED4 and beyond.

In addition, the current IIS methodology needs to be reviewed, particularly the method of target setting and criteria for Exceptional Events, as an incentive will not drive the right behaviour if it unachievable and/or leads to some customers being left behind.

Q60. Do stakeholders agree with retaining and strengthening the main components of the environmental framework from RIIO-ED2?

Key messages:

- The main components of the ED2 environmental framework require to be updated and strengthened. Consideration should be given to the development of incentives that encourages work towards developing a more proactive response to SF6 leaks. An incentive could also be established which would drive DNOs to deliver integrated solutions as part of their investment decision process, whereby DNOs would have to demonstrate the natural or societal value delivered
- Uncertainty Mechanisms will be required to respond to regulatory legislation (e.g. DEFRA – SF6). Impact on nature from network investment should be integrated into the environmental framework to ensure appropriate mitigations and funding.

We generally support the principle of maintaining and strengthening the key components of the environmental framework from ED2. This will ensure that network companies remain focussed on reducing the impact of their operations on the environment, which given the scale and pace of change anticipated for ED3, will be more important than ever. However, the framework must also recognise the limitations and challenges that network companies face in some areas (e.g. decarbonisation of fleet and buildings). Specifically, we would like to see further consideration given to the following areas:

Improvements to existing reporting

We agree with the principle to standardise performance metrics used in target setting and annual reporting if that is aligned with generally recognised national or international ESG standards.

In addition to the existing focus on high quality data and meaningful glidepaths across the regulatory period, we also believe that there should also be increased focus on in-year targets where possible. This will prevent back loading of deliverables, ensuring more beneficial outcomes for nature and communities. This would also align with the principle to review and challenge performance over the price control period, which we are supportive of as long as dependencies that are beyond the control of the DNO are recognised.

SF₆ uncertainty and monitoring

We are currently working to the requirements and ban dates per EU regulation 2024/573. We are proactively engaging with as many suppliers as possible with regards apparatus utilising other products than SF₆ as its IIG and if there is a possibility to replace the SF₆ in apparatus already in operation, but technical limitations apply to this approach at a DNO level, we are however continuing to explore this avenue. In addition, we are still unclear whether DEFRA will go beyond the EU requirements and want proactive removal of SF₆ containing assets, therefore it is vital that we retain a suitable reopener or uncertainty mechanism in this space.

With regards to performance, we would ask for a review as to whether the unit of measure for SF₆ (loss as a percentage of bank) is still appropriate as we transition to a price control which should see the overall bank size decrease. In addition, we question the viability of Ofgem's ambition in this space for ED3 if the current measure is maintained. In the consultation the leakage rate for 2022/23 is quoted as 0.4% across the distribution network (paragraph 9.44). Depending on the design of the apparatus, this level of performance already far exceeds what is expected.

- Closed SF₆ system: Maximum leakage rate of 1% per year prior to 2015 but was tightened to 0.5% per year.
- Sealed SF₆ systems: Maximum leakage rate of 0.1%.

(Figures from BS EN IEC 62271-1 and based on testing at a temperature of 20°)

To continue to drive performance improvements in an achievable manner, we believe that a natural expectancy-based approach to SF₆ loss reporting should be considered to account for losses due to natural capability of the apparatus in question (i.e. recognising the difference in performance between sealed and closed pressure systems) which would drive DNOs to address items which lose SF₆ at a much faster rate than expected but allowances should also be made for exceptional circumstances that are significantly outside of DNO control. In addition, the natural expectancy should be taken into consideration when reporting losses inferred from SF₆ recovered after an asset has been decommissioned.

Given the scale of impact of SF₆, we believe consideration should also be given to the development of incentives that encourages work towards developing a more proactive response to SF₆ leaks. This could include improving visibility of SF₆ pressures in apparatus containing larger quantities of SF₆ on a proactive basis versus the historic reactive response of receiving an alarm. This is a new area which needs development as it requires constant monitoring and a full understanding of apparatus/area temperature to be able to correlate the pressure being read against that which would be expected.

Opportunities to expand the scope of the environmental framework

The impact on nature from network development and investment

Recognising the global decline in the natural environment this should be a key issue that is integrated into the environmental framework to ensure appropriate mitigations and funding are in place.

We already have a mandatory 10% Biodiversity Net Gain requirement for works requiring planning permission. However, given the scale and pace of change anticipated for ED3, we believe it would be appropriate for DNOs to be incentivised to collaborate with other parties to leverage greater

strategic impact on nature improvement. This incentive would drive DNOs to go beyond the legal minimum requirement, encouraging the delivery of high value additionality (as determined by social impact methodology). If an incentive is not deemed to be appropriate, we would encourage Ofgem to consider a UIOLI allowance given the importance of work in this area.

Environmental impact beyond visual amenity

The Visual Amenity allowance has been highly successful in driving the removal of overhead assets from Areas of Outstanding Natural Beauty and National Parks across our licence areas over multiple price controls. However, we believe that ED3 is an appropriate milestone to review the criteria used for assessing potential schemes to ensure the mechanism is driving optimal outcomes. The current methodology used, in terms of site selection and funding, revolves solely on visual impact and cost to deliver. We believe that, to ensure network companies are driven to deliver optimal environmental outcomes, the methodology would need to be expanded to take into consideration the overall environmental impact (i.e. impact on nature, use of materials, carbon impact of capital works) with priority focus on those areas of high materiality such as, GHG reduction, nature restoration, environmental management/pollution control, etc.

Positive nature and/or societal impact

The use carbon mitigation, pollution control and adaptation solutions to meet business needs can also have additional benefit to nature or a positive societal impact. To encourage this behaviour an incentive could be established which would drive DNOs to deliver integrated solutions as part of their investment decision process, whereby DNOs would have to demonstrate the natural or societal value delivered (e.g. ecosystem enhancement & biodiversity benefits, including pollinator habitats; community benefits, including cleaner air and creation of recreation space; and wider societal benefits, including natural flood management).

Q61. Do stakeholders agree with building on the approach taken to cyber resilience in RIIO-3 for ED3?

Key messages:

- Building on the cyber resilience approach is essential for ensuring the security and robustness of the energy network.
- Alignment with recognised industry standards & adopting an outcome-driven approach to cyber resilience and support the development of a unified Cyber Resilience Business Plan (CRBP). We propose that ED3 should reform the current PCD based approach on capital expenditure reviews to prioritise measurable outcomes and also re-consider the ED2 position on exclusion of technological refresh in its review and assessment.

We agree that building on the cyber resilience approach established in RIIO-3 is essential for ensuring the security and robustness of the energy network. However, to further enhance its effectiveness, we believe the ED3 framework must address several key considerations to align with evolving threats, streamline compliance, and promote consistency across DNOs.

Clear alignment with recognised industry standards, such as the Network and Information Systems Regulations (NIS-R), will be critical. Standardisation efforts should aim to reduce interpretative variability that may lead to inconsistent risk management practices among DNOs. Establishing more precise guidelines, underpinned by external audits or assessments akin to the Qualified Security Assessor (QSA) process in the Payment Card Industry Data Security Standard (PCI DSS), would provide objective evaluations of cyber resilience and reinforce a unified security posture.

Additionally, we propose adopting an outcome-driven approach to cyber resilience. The current Price Control Deliverable (PCD) reporting process could be revised to prioritise measurable outcomes over capital expenditure, enabling a clearer assessment of cyber posture. This shift would align with NCSC's Cyber Assessment Framework (CAF) and help ensure that cyber resilience efforts are both impactful and transparent. Combining IT and OT environments into a single Cyber Resilience Business Plan (CRBP) would streamline efforts and provide a holistic perspective on resilience. We agree with the use of existing templates, such as those for NIS Self-Assessment and Improvement Reports, for the CRBP. However, careful consideration should be given to the exclusion of technology refreshes and end-of-life replacements, which differ from ED2 practices.

Collaboration will also play a pivotal role in enhancing cyber resilience. Working closely with other DNOs and downstream companies through initiatives such as threat intelligence sharing and Cyber Security Working Groups (CSWG) under the ENA will encourage sector-wide improvements. Aligning architecture interoperability and automation will further ensure consistency across the network and enable faster responses to emerging threats.

Finally, we advocate for continued focus on operational outcomes through external assessments and appropriate governance mechanisms. By driving consistency horizontally across DNOs and vertically within organisations, this approach ensures that resilience measures are effective, measurable, and aligned with overarching security objectives.

By addressing these considerations, the ED3 framework can build upon the strong foundation established in RIIO-3, promoting a secure, adaptive, and resilient energy system capable of meeting future challenges.

Q62. What specific issues are network companies facing in relation to the skills and capacity of their workforce and what measures should we take through the regulatory framework to mitigate these issues?

Key messages:

- There is significant competition to attract, hire and retain talent across the infrastructure sector. Investment in staff training, particularly in both smart and traditional network engineering roles, is needed to alleviate the market factors driving up resource constraints and the resultant costs.
- The ED3 regulatory framework needs to enable investment in building skills capability ahead of need which will further support economic growth and Ofgem's economic growth duty.

As the nation's demand for electricity grows and we move to a greener economy, a larger workforce with both skills in smart and traditional networks engineering will be needed across the industry. This creates a lot of competition to attract, hire and retain talent. Increases in Engineering, Project Management, Leadership and Data/Digital skills (including Cyber) are required to support the delivery of the clean energy mission, including Clean Power 2030 and these skills are in high demand.

Additionally, emerging technologies in areas, such as automation, artificial intelligence, and data analytics are becoming more important; increasing the strategic need for us to ensure we are investing in upskilling and reskilling initiatives for our people.

We anticipate a 45% attrition in the existing workforce by 2034, based on a yearly attrition rate of c. 5%. We estimate an overall resource gap of around 3,400 FTEs by 2034. As such, the regulatory

framework needs to enable investment in building capability ahead of need as to continue building the capabilities we need in a constrained marketplace. We must put a strong focus on growing our own skills; through apprenticeships, graduate programmes, experienced hires programmes, and reskilling our existing workforce to work with smarter technologies. This includes continuing to build leadership capability to deliver the energy transition. An early funding mechanism is needed to provide financial commitments to attracting, recruiting, and reskilling the workforce. This also supports the wider UK economy by building capability in the UK workforce, also aligning with the Economic Growth duty.

Q63. What specific issues are supply chains facing and what measures should we take through the regulatory framework to mitigate these issues?

Key messages:

- Supply chain is under significant pressure from growing global infrastructure demand set against insufficient capacity in equipment and skills
- The ED3 framework needs to respond through provision of (i) certainty through long-term planning, (ii) strengthening alignment between price control mechanisms and forward-looking procurement strategies and (iii) developing flexible regulatory models that respond to uncertainties in demand growth, expand targeted recruitment and training programs for apprentices, graduates and experienced hires to close the skills gap.

The supply chain for electricity distribution infrastructure continues to face significant challenges. These stem from a combination of global and macroeconomic factors, including increasing volatility in commodity prices, with copper experiencing a >70% price rise in recent years, constrained manufacturing capacity, and growing geopolitical tensions. Additionally, supply chain disruptions caused by natural disasters and pandemics have underscored the fragility of existing systems, highlighting vulnerabilities in lead times and costs for critical infrastructure components. These pressures are compounded by increasing societal and regulatory demands for secure, reliable, and affordable supply chains that align with net-zero goals and deliver value to consumers.

The uncertainties around the pace and scale of ED3 investments further amplify these challenges. Shifts in heat and transport electrification pathways, as highlighted in Chapter 6 of the ED3 consultation, alongside unpredictable energy demand growth, place additional strain on already stretched supply chains. Traditional procurement cycles that rely on short-term benchmarking may exacerbate these pressures, particularly when abrupt increases in delivery requirements occur. Such uncertainties risk delays in project delivery, rising costs, and impacts on consumers in terms of energy affordability and reliability.

The aging workforce within electricity distribution (30% over the age of 50) and limited inflow of skilled labour create significant barriers to supply chain resilience. With an estimated 240 apprentices and graduates required annually by 2025, alongside further upskilling of existing workers, addressing the workforce gap is critical to meet future demand. Without targeted interventions, labour shortages could hinder timely project delivery and increase reliance on higher cost subcontracted labour, adversely affecting customers.

Recommended Measures

To mitigate these supply chain and workforce challenges, and build resilience require to go beyond the priorities outlined in Chapter 6 of the consultation:

1. **Overarching certainty through long-term planning:** strengthen alignment between price control mechanisms and forward-looking procurement strategies. A longer-term programmatic and portfolio approach to load-related work will provide supply chain certainty, increasing confidence in delivery of key materials and reducing project delays risks. Advance commitments to critical supply chain investments in equipment and services through mechanisms like an Advance Procurement Mechanism (APM) is welcomed, taking into consideration the differences in scale and volume of work from DNOs vs TOs. This will support security of supply while shielding customers from price shocks.
2. **Careful consideration of the balance of ex ante and ex post approaches:** develop flexible regulatory models that respond to uncertainties in demand growth. These should enable anticipatory investments to reduce bottlenecks without unduly burdening customers with stranded costs.
3. **Investment in skills and training:** expand targeted recruitment and training programs for apprentices, graduates and experienced hires to close the skills gap. For example, tailored schemes addressing regional workforce shortages could ensure timely project delivery and enhance customer outcomes by reducing delays and associated costs. Accelerate investment ahead of need in workforce reskilling and upskilling programs, enabling existing employees to transition into higher-value technical roles that align with net-zero priorities. To build internal digital expertise, it is also necessary to prioritise targeted investment in comprehensive training in other areas such as data analytics, cybersecurity, digital project management, and emerging technologies like Artificial Intelligence (AI) and the Internet of Things (IoT).

Overall, providing certainty and front-loading funding to address these challenges will deliver best long-term value for customers.

Q64. Given our comments in Chapter 6 around taking a more proactive approach, are there any specific features of a more anticipatory or strategic investment approach that might create risks or opportunities for supply chain and workforce constraints?

Key messages:

- Strategic anticipatory investments enable us to create a more agile workforce and supply chain ecosystem, enhancing the resilience of both and ensuring readiness for anticipated growth or demand spikes. By taking this forward-looking approach, we can ensure supply chain stability, workforce readiness, and operational excellence as key enablers for long-term success in the energy sector.
- A longer-term programmatic approach enables us to engage suppliers to secure capacity and de-risk supply chain bottlenecks. The regulatory framework should provide the strategic flexibility to unlock anticipatory investments which will provide for flexibility in securing capacity in alignment with project growth and skill needs.

In line with response to Q63, adopting a more proactive and strategic anticipatory approach have the potential to mitigate risks and create opportunities for supply chain and workforce constraints.

Strategic anticipatory investments enable us to create a more agile workforce and supply chain ecosystem, enhancing the resilience of both and ensuring readiness for anticipated growth or demand spikes. By taking this forward-looking approach, we can ensure supply chain stability, workforce readiness, and operational excellence as key enablers for long-term success in the energy sector.

Opportunities:

1. **Workforce Development:** Due to market constraints, demand being high across all networks and an aging workforce in Electricity Distribution (2024 - 30% of the workforce is aged over 50) and across the energy sector, growing our own capability through trainee programmes is key. To ensure we have the workforce we need by 2028, we plan to train 240 apprentices and graduates commencing in 2025, and c.900 additional apprentices and graduates in the following years to ensure continuity of our workforce, specifically critical capabilities over the next 10 years. Time to competency takes around 3 years for an apprentice/trainee and 18 months for a graduate. Planning to ensure we have the right workforce at the right time is critical.
 - By focusing on entry level talent, we expand pathways and opportunities for diverse talent acquisition as the talent pool is more diverse at this stage.
 - Introducing early funding mechanisms to develop skills and capability for critical technical roles (e.g., operational engineers, line workers, control engineers) is also required to proactively build critical capability.
 - Investment will be required in the training facilities to ensure an increase in learners can be accommodated and learning techniques / methods are invested in through technology.
2. **Supply Chain Collaboration:** taking a long-term, programmatic view by engaging with key suppliers to manage resource availability during demand surges. Aligning investment timing with supply chain capacity ensures material and resource availability for critical projects at the right time. Leveraging anticipatory investment planning to de-risk supply chain bottlenecks and ensure capacity early (e.g., APM).
3. **Regulatory and Strategic Flexibility:** collaborating with regulatory frameworks to unlock anticipatory investments. This allows for flexibility in securing capacity and infrastructure in alignment with projected growth and skill needs. Managing risks associated with centralised planning by maintaining flexibility to adjust resource allocation based on dynamic local needs and evolving regulatory inputs.

Main Risks

1. **Risk of misaligned investment due to changing forecasts or delayed inputs from centralised planning**
2. **Building network too early and adversely impact consumer bills**

Q65. What would the benefits be of a geographical approach to delivering new and upgraded assets in terms of supply chain and workforce constraints?

Key messages:

- There is a need to acknowledge regional differentiation with each licence area having unique characteristics that require differentiated approaches within an agreed framework for assessment. By focusing on local communities, a geographical approach helps attract and retain candidates meaning we can grow talent provided we have the necessary investment across key depots and offices.
- Funding targeted upgrades to key depots and offices ensures that optimal working environments are created supporting both workforce retention and inventory management. While a geographical approach provides clear advantages in certain contexts, it must be balanced against a needs-based strategy. By integrating both approaches, we can optimise resource allocation and investment priorities.

A geographical approach to delivering new and upgraded assets can benefit and mitigate **some** supply chain and workforce constraints while enhancing overall investment delivery confidence.

We believe there is a need to acknowledge regional differentiation: each licence area has unique characteristics that require differentiated approaches within an agreed framework for assessment.

Workforce Mobility and Attraction:

1. **Localised Talent Development:** by focusing on local communities, a geographical approach helps attract and retain candidates locally. This increases workforce stability and reduces mobility barriers often faced in remote or less accessible areas.
2. **Targeted Investments:** a local approach means we can grow talent to deliver in our four licence areas. Investment would be required across key depots and offices to ensure the working environment is attractive to a younger population. The working environment is a key retention lever which is required to ensure a high retention rate of skilled people.

Improved Supply Chain Collaboration:

1. **Proximity to Suppliers:** concentrating operations in regions with strong supply chain ecosystems reduces lead times and logistical inefficiencies, ensuring timely delivery of materials and resources for critical projects.
2. **Resilience in Delivery:** geographically distributed approach allows for greater flexibility in managing supply chain disruptions by leveraging regional networks and decentralizing dependencies.

Operational Efficiency:

1. **Investment in Regional Infrastructure:** funding targeted upgrades to key depots and offices ensures that optimal working environments are created. This also supports both workforce retention and inventory management.
2. **Alignment with Local Needs:** a geographically focused strategy can be tailored to specific regional requirements, ensuring that investment aligns with the unique demands and growth trajectories of each area.

Key Risks:

1. While a geographical approach provides clear advantages in certain contexts, it must be balanced against a needs-based strategy to avoid overinvestment in areas with lower demand.

By integrating both approaches, we can optimise resource allocation and investment priorities. Over-investment in specific areas could lead to disparities in infrastructure readiness across regions. Regular reviews of regional demand and workforce requirements can help mitigate this risk, enhance delivery confidence, improve workforce engagement, and strengthen supply chain resilience.