

Consultation

RIIO-3 Sector Specific Methodology Consultation - Overview Document

Publication date:	13 December 2023
Response deadline:	6 March 2024
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We are consulting on the methodologies we will apply for the electricity and gas transmission and gas distribution sectors in the RIIO-3 price control, which will run from 1 April 2026. We would welcome views from all stakeholders with an interest in the regulation of the energy networks. We particularly welcome responses from groups representing consumers of gas and electricity. We would also welcome responses from other stakeholders and the public.

This document outlines the scope, purpose and questions of the consultation and how you can get involved. Once the consultation is closed, we will consider all responses. We want to be transparent in our consultations. We will publish the non-confidential responses we receive alongside a decision on next steps on our website at [ofgem.gov.uk/consultations](https://www.ofgem.gov.uk/consultations). If you want your response – in whole or in part – to be considered confidential, please tell us in your response and explain why. Please clearly mark the parts of your response that you consider to be confidential, and if possible, put the confidential material in separate appendices to your response.

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Foreword

Accelerating the shift away from fossil fuels to clean energy will help improve affordability by breaking the link between electricity bills and gas prices; it will increase the security of supplies of energy; it will help to protect consumers from the dangers of unmitigated climate change; and it will help generate growth, jobs and investment.

The energy networks remain at the heart of this transition. Building new network capacity and capabilities, in the right place, at the right time is the key to getting to net zero.

A tremendous expansion of the electricity infrastructure is already underway with the most radical transformation of the grid seen since the 1950s. This increase in network capacity is underpinned by taking a more strategic approach to the way we plan the energy system, and significant reforms that will speed up the pace of connections to the grid and maximise the use of the network we have already today.

While demand for electricity is likely to grow, there remains strategic uncertainties around the future of gas. With usage expected to fall and the future role of the gas grids - particularly for domestic heat purposes - still to be determined, we must carefully consider our future regulation of these networks.

Decarbonising heat whilst continuing to enable safe, secure and reliable supplies for households and businesses remains our priority for the next funding period. However, we must consider carefully how prices and charges should be set for gas infrastructure ensuring both efficiency in future spending but also fairness in how the costs of historical investment are recovered, protecting gas customers, current and future, as well as investors.

Looking forward, we must enable an environment for our energy sector that continues to grow and become more competitive, so that the huge sums of investment we know we need to meet our net zero goals are raised successfully, and at low cost to consumers.

That will need government, regulator, industry, and wider stakeholders to work together in a way that they haven't before – undertaking nothing less than a new industrial revolution to overcome barriers and reach a net zero energy system as soon as possible.

Today's consultation on our regulation of the electricity transmission and gas networks is a key step in that process.

The objective is clear: acceleration of the shift to a net zero energy system; ensuring consistently high standards of service for customers; maintaining security of supply and strengthening the resilience of our energy infrastructure to future threats; and delivering consistent, fair returns to investors reflective of the wider market environment.

1. Introduction

Ofgem's responsibilities

- 1.1 Ofgem is Great Britain's independent energy regulator. We work to protect energy consumers, especially vulnerable people, by ensuring they are treated fairly and benefit from a cleaner, greener environment.
- 1.2 We operate in a statutory framework set by Parliament. This establishes our duties and gives us powers to achieve our objectives. We are governed by the Gas and Electricity Markets Authority ('GEMA'), which determines Ofgem's strategy, sets policy priorities and makes decisions on a wide range of regulatory matters, including price controls and enforcement.
- 1.3 Our principal duty is to protect the interests of existing and future gas and electricity consumers.
- 1.4 Over the past year there have been important changes that affect our remit. Alongside wider responsibilities as set out in the Energy Act (2023), including in relation to the Future System Operator (FSO) and around the regulation of new technologies, we also have new duties relating to net zero and growth.

Net Zero Duty

- 1.5 To date, Ofgem has had a general statutory duty to protect existing and future consumers' interests by the reduction of greenhouse gases emissions in electricity and gas supply.
- 1.6 The Energy Act replaced greenhouse gas emission wording with a specific net zero mandate. The mandate means for the first time there is a specific duty directly linking consumers' interests to specific net zero targets and Ofgem will play a key role in supporting the UK government to meet its legal obligation to get to net zero by 2050.
- 1.7 In order to deliver on the net zero mandate, Ofgem will engage with stakeholders to ensure we continue to protect the interests of gas and electricity consumers, whilst delivering the necessary intervention, unlocking investment, accelerating planning, and building the infrastructure the economy needs to achieve the transition to net zero.

Growth Duty

- 1.8 In November 2023 the UK government announced its intent to take forward proposals that would extend a Growth Duty to Ofgem. Subject to consultation on

statutory guidance this will require Ofgem to have regard to the desirability of promoting sustainable economic growth. This duty is due to take effect in April 2024, and will be a relevant consideration in Ofgem decision-making.

- 1.9 Ofgem already plays an important role in supporting growth, delivering investment in Great Britain’s energy infrastructure, driving efficient and resilient systems, and protecting consumers.
- 1.10 We will consider the full implications of this new duty as part of our wider forward work programme for 2024 and beyond.

What are we consulting on?

- 1.11 This is our consultation on the methodology we will apply for setting the RIIO-3 price controls for the gas distribution (GD), gas transmission (GT) and electricity transmission (ET) networks. These price controls will run from April 2026.
- 1.12 The next price control for electricity distribution network operators (DNOs) will begin in 2028 and we are not consulting on proposals for this sector at this stage. Similar measures to those set out in this consultation could, in principle, apply to RIIO-ED3, but this would be subject to future consultation on our proposed sector specific methodology for RIIO-ED-3.
- 1.13 We began this process in September 2022 with an Open Letter which set out the strategic context of future systems and network regulation (FSNR) and invited views from stakeholders on the framework.¹ In March 2023, we issued a consultation on the overarching FSNR framework and followed this with our Framework Decision in October 2023.² We are now developing the methodology we will use to apply this framework in the context of each sector. We set out the timelines and future RIIO-3 milestones in Chapter 3.

How to respond

- 1.14 We want to hear from anyone interested in this consultation. Please send your response to the person or team named on this document’s front page.
- 1.15 We’ve asked for your feedback in each of the questions throughout. Please respond to each one as fully as you can.

¹ [Open Letter: Future Systems and Network Regulation | Ofgem](#)

² [Decision on frameworks for future systems and network regulation | Ofgem](#)

- 1.16 We will publish non-confidential responses on our website at www.ofgem.gov.uk/consultations.

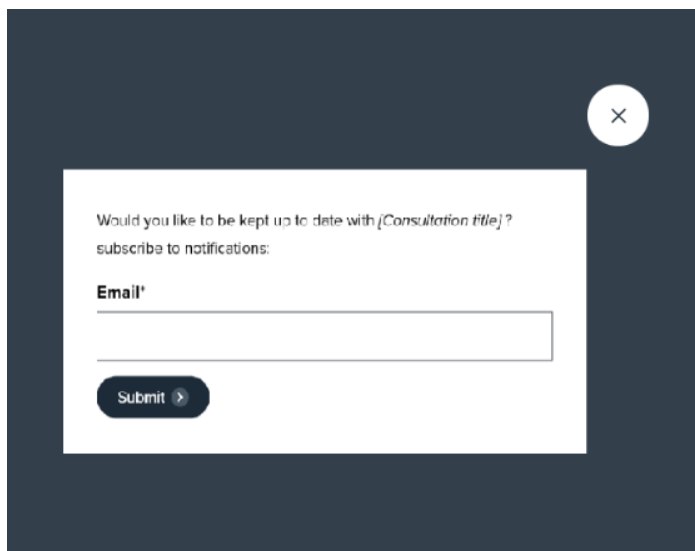
Your response, data and confidentiality

- 1.17 You can ask us to keep your response, or parts of your response, confidential. We'll respect this, subject to obligations to disclose information, for example, under the Freedom of Information Act 2000, the Environmental Information Regulations 2004, statutory directions, court orders, government regulations or where you give us explicit permission to disclose. If you do want us to keep your response confidential, please clearly mark this on your response and explain why.
- 1.18 If you wish us to keep part of your response confidential, please clearly mark those parts of your response that you do wish to be kept confidential and those that you do not wish to be kept confidential. Please put the confidential material in a separate appendix to your response. If necessary, we'll get in touch with you to discuss which parts of the information in your response should be kept confidential, and which can be published. We might ask for reasons why.
- 1.19 If the information you give in your response contains personal data under the General Data Protection Regulation (Regulation (EU) 2016/679) as retained in domestic law following the UK's withdrawal from the European Union ("UK GDPR"), the Gas and Electricity Markets Authority will be the data controller for the purposes of GDPR. Ofgem uses the information in responses in performing its statutory functions and in accordance with section 105 of the Utilities Act 2000. Please refer to our Privacy Notice on consultations at Appendix 1.
- 1.20 If you wish to respond confidentially, we'll keep your response itself confidential, but we will publish the number (but not the names) of confidential responses we receive. We won't link responses to respondents if we publish a summary of responses, and we will evaluate each response on its own merits without undermining your right to confidentiality.

How to track the progress of the consultation

- 1.21 You can track the progress of a consultation from upcoming to decision status using the 'notify me' function on a consultation page when published on our website. Ofgem.gov.uk/consultations

Notify me +



- 1.22 Once subscribed to the notifications for a particular consultation, you will receive an email to notify you when it has changed status. Our consultation stages are:
- Upcoming > Open > Closed** (awaiting decision) > **Closed** (with decision)

Structure of document suite

- 1.23 This document provides an overview of our Sector Specific Methodology Consultation (SSMC) and sets out proposals on cross-sector areas. The sector specific annexes set out proposals on a sector-by-sector basis, while the Finance Annex sets out proposals on a cross-sectoral basis.

2. RIIO-3 Sector Specific Methodology Consultation at a glance

2.1 In our Framework Decision we set out what we considered were the key outcomes that consumers and network users would expect network companies to deliver through RIIO-3. These outcomes, which are a product of the approach taken at RIIO-2 and our Consumer Interest Framework,³ ensure that consumer priorities remain at the heart of our decision-making:

- **Infrastructure fit for a low-cost transition to net zero:** Network companies must facilitate a low-cost, environmentally sustainable, low carbon energy system that enables the transition to net zero, with infrastructure built at pace;
- **Secure and resilient supplies:** Network companies must deliver a safe, secure and resilient network that is efficient, data rich and responsive to change. Consumers should have access to gas and electricity supplies that are resilient to physical, financial, climate and cyber shocks;
- **High quality of service from regulated firms:** Network companies must deliver a high quality and reliable service to all consumers and network users, including those who are in vulnerable situations; and
- **System efficiency and long-term value for money:** Network companies must deliver an efficient cost of service, minimise the costs to consumers of system transformation and ensure consumers and network users get a fair deal.

2.2 These outcomes will form a golden thread through the suite of our RIIO-3 documents in the same way our consultations and decisions were presented for RIIO-2. This chapter of the document aims to highlight what we consider are the main challenges for RIIO-3 under each of these outcomes.

2.3 We consider that a key enabler of all of these outcomes, across all sectors, will be improvements across data and digitalisation, by which we mean the production of high-quality data that is shared with all those who need it to improve the working of the system. In parallel with this consultation, we will continue to work with the sector on the development of Minimum Viable Product (MVP) to enable data sharing in the context of the price control, as part of the development of a Data

³ [2023/24 Forward Work Programme | Ofgem](#)

Sharing Infrastructure (DSI), which is discussed in more detail in Chapter 13. We intend that the RIIO-3 price control process should work alongside this process, including whether there are implications for costs and incentives to develop and maintain the systems that are required to deliver this data.

- 2.4 We also set out in our Framework Decision that simplification would be a key focus for RIIO-3 as we seek to reduce the regulatory burden by streamlining the process, where it does not expose consumers to undue risk. Throughout this document and in the sector specific annexes we set out proposals to realise this objective.

Infrastructure fit for a low-cost transition to net zero

- 2.5 As acknowledged in our Framework Decision, GB needs to accelerate the shift away from fossil fuels to clean energy as we move towards net zero. This will help to reduce costs to consumers by breaking the link between electricity bills and gas prices; it will improve the security of supplies of energy; and it will help to protect consumers from the dangers of inevitable climate change.
- 2.6 The net zero targets for 2035 (a net zero clean power system) and 2050 (a net zero economy) will result in increased electricity demand as heating and transport are electrified. This demand will be met by changing the locations, types and quantity of supply as fossil fuelled generation is replaced by low carbon alternatives such as wind, solar and nuclear.
- 2.7 It is imperative that electricity generation and network investment are closely planned and coordinated. In September 2023 the Prime Minister committed to the development of a strong spatial planning framework for the energy system,⁴ following recommendations by the Electricity Networks Commissioner (ENC).⁵ The purpose of this improved spatial planning is to coordinate generation, storage and network infrastructure in time and space, so that – as far as possible – when new wind farms, nuclear power stations, electric vehicles and battery factories are ready to connect to the grid, the necessary grid capacity is already in place.
- 2.8 The ENC's review into accelerating electricity transmission network deployment has featured heavily in our considerations around designing our approach to funding new electricity transmission network build. In particular, our proposals for RIIO-ET3 incorporate ENC recommendations that relate to removing Ofgem from

⁴ [PM speech on Net Zero: 20 September 2023 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/speeches/pm-speech-on-net-zero-20-september-2023)

⁵ <https://www.gov.uk/government/publications/accelerating-electricity-transmission-network-deployment-electricity-network-commissioners-recommendations>

the critical path for project development, enabling early and effective supply chain engagement and only using competitive tendering where it won't cause delays to project delivery.

2.9 Our new framework for funding major new ET investments was decided, at a high level, in our Framework Decision. Building on learning from the Accelerated Strategic Transmission Investment (ASTI) regime created during RIIO-ET2, this entails:

- the need for projects being established by the FSO;
- automatic funding for early works on projects;
- expedited cost assessments supported by an independent technical advisor; and
- a strong financial incentive to promote timely and high-quality delivery.

2.10 For investments of a lower financial value we are proposing a suite of up-front funding and uncertainty mechanisms (UMs) to ensure that the transmission owners (TOs) are able to invest in the networks in a timely manner and at the speed needed to meet net zero targets. This will include:

- an UM to fund lower value works that are identified by the Centralised Strategic Network Plan (CSNP);
- generation and demand connections volume drivers; and
- ex-ante allowances and a re-opener for load-related investments not identified by the CSNP that are needed as a result of multiple different drivers (eg non-load, connection requests, system operability).

2.11 We will also ensure that RIIO-3 operates effectively alongside the work that we and government have committed to in our recent Connections Action Plan (CAP)⁶ and Transmission Acceleration Action Plan (TAAP)⁷ to reduce the length of the connections queue.

2.12 Enhanced system planning should allow us to move away from the approach taken in the past where market-led increments to ET grid capacity lagged accelerating renewable generation connecting to the grid. In the future, we intend that programmatic grid expansion should occur in line with top-down system plans prepared by the FSO, in anticipation of generation and demand. Changes to

⁶ [Electricity networks: connections action plan - GOV.UK \(www.gov.uk\)](http://www.gov.uk)

⁷ [Electricity networks: transmission acceleration action plan - GOV.UK \(www.gov.uk\)](http://www.gov.uk)

strategic planning in ET are described in more detail in Chapter 2 of our ET Annex.

- 2.13 Global supply chain constraints currently being experienced by the energy industry are another key aspect that will shape our approach to setting the regulatory framework for future price controls. This has been caused by a multitude of factors including the war in Ukraine, the COVID-19 pandemic and the global push towards net zero which has increased demand for equipment and skilled labour. Clearly some of these factors are beyond the control of the network licensees or Ofgem, but nonetheless we will shape RIIO-ET3 to mitigate the impact on GB energy consumers as far as possible without placing undue risk on the TOs.
- 2.14 For the gas sectors, we also face a number of distinct challenges that will impact our approach to regulation through the RIIO-3 period and beyond. This includes:
- balancing the level of investment needed to maintain a safe and reliable network with the uncertainty around the pace at which gas demand declines across different parts of GB;
 - uncertainty in the extent to which existing gas network assets may be repurposed for hydrogen or Carbon Capture, Utilisation and Storage (CCUS);
 - deciding how costs for both historical and future investment are recovered over time from a declining customer base to ensure fairness and protect both consumers and investors against the risk of asset stranding; and
 - tackling the issue of how to pay for the potential decommissioning of assets where they are no longer required through the 2030s and 2040s.
- 2.15 The FSO will produce a gas transmission strategic network plan as part of the CSNP in 2026 while cross-vector regional system plans are also expected to be provided by new Regional Energy Strategic Planners (RESPs) in the next price control, which will be relevant to the future operation of the gas distribution networks. However, the strategic uncertainties around the role of natural gas and hydrogen networks in the net zero transition means the full scope of these plans is still to be determined. Accordingly, there is greater uncertainty as to which gas network investments may be required, and the speed at which they will need to happen, than for electricity networks.
- 2.16 Hydrogen will have a role in decarbonising the UK economy, but its future demand and end uses are still uncertain. At this stage, the largest uncertainty is around hydrogen's role in domestic heating, with a strategic policy decision

expected to be made by the government in 2026. If there is a limited or no role for hydrogen in domestic heating then a higher proportion of the gas network will need to be decommissioned. This uncertainty, however, is likely to pose more of a strategic risk for the GD sector than the GT sector. In the case of GT, there is a greater likelihood that parts of the existing network can be repurposed for hydrogen or CCUS to decarbonise industry and power generation. Work is already underway through NGT's Project Union to understand the feasibility of repurposing sections of its transmission network to connect hydrogen production to future hydrogen users in, and between, industrial clusters.

- 2.17 Notwithstanding these uncertainties, Ofgem bases decisions on the current stated government position and how that flows into Ofgem's remit. In setting our price controls we have regard to the need to secure that licence holders are able to finance their activities. On this basis, Ofgem must plan to recoup historical and future investment from current and future consumers, and to protect consumers this may mean there is merit in leaving some optionality for transfers of re-purposable asset to third parties.
- 2.18 The future of gas is discussed in more detail in Chapter 4, and in the GD and GT Annexes. The considerations around the return of RAV are discussed in more detail in the Finance Annex.

Secure and resilient supplies

- 2.19 The energy system is evolving, especially with regard to the services and flexibility that network and non-network companies can provide to each other and to the system. Amidst this changing landscape, network companies must make sure that their organisations, assets and systems are resilient against a range of risks that they face, both now and in the future.
- 2.20 In our Framework Decision we set out that one of the key outcomes for the next price controls is to ensure that network companies embed resilience into their day-to-day decision making, as well as their long-term strategy development, to safeguard the security and resilience of network services for both existing and future consumers.
- 2.21 In achieving this objective, we think there are a number of key areas that require focus in RIIIO-3 in light of the significant anticipated challenges. Specifically, network companies need to improve their long-term resilience to climate change and account for the impacts of more extreme and frequent severe weather events on their networks. The impact of Storm Arwen in 2021 is one example of how climate events can negatively impact energy networks today; these impacts will

increase over time due to inevitable climate change. At the same time, the transition to net zero will increase the energy system's vulnerability to these risks.

- 2.22 Independent expert advisors (such as the Climate Change Committee, National Infrastructure Commission and Joint Committee on the National Security Strategy) all agree that the current level of action and investment in energy sector is not enough to manage these increasing risks and further proactive action is needed urgently.⁸
- 2.23 In Chapter 6 we provide more detail on our proposals to require network companies to proactively consider the impacts of climate change and further embed climate resilience into their investment proposals.
- 2.24 In addition, network companies need to ensure they are resilient to the increased threat of cyber-attacks. Under the Network and Information Systems (NIS)⁹ Regulations, network companies must take appropriate and proportionate measures to manage the risk of cyber-attack on their network and information systems, including their associated supply chains. Network companies are becoming increasingly reliant on interconnected technologies and systems to deliver essential energy and services to consumers. This will increase as networks become smarter, more automated and more digitised in the drive towards net zero. It is, therefore, crucial that network companies ensure their systems and processes are protected and can withstand the fast pace of evolution under the cyber landscape.
- 2.25 In Chapter 11 we provide more detail on our proposals to build on the good progress made to date in RIIO-2, and simplify and streamline this policy area, whilst maintaining our ability to ensure compliance with the NIS Regulations and respond to changes in the cyber-risk landscape.

High quality of service from regulated firms

- 2.26 While there are significant challenges in delivering infrastructure fit for a low-cost transition to net zero and improving the security and resilience of supplies, we will continue to place a strong focus on the quality of service that network companies provide customers and this will remain a key outcome for RIIO-3.

⁸ JCNSS (2022) [Readiness for storms ahead? Critical national infrastructure in an age of climate change \(parliament.uk\)](#), CCC (2023) [Progress report on climate change adaptation](#), NIC (2020) [Anticipate, React, Recover: Resilient Infrastructure Systems](#)

⁹ [The NIS Regulations 2018 - GOV.UK \(www.gov.uk\)](#)

- 2.27 The most valuable service a network company can provide is an uninterrupted supply of power or gas, and while there have been significant improvements in network reliability across the sectors it is important that we ensure this is built on and not eroded through the transition to net zero.
- 2.28 The approach network companies take to customer service, particularly to vulnerability, is an area that requires continued effort and focus. Network companies have an important role in providing protection and support to consumers including assisting those most at risk during outages; proactively identifying consumers in vulnerable situations; taking measures to address vulnerability when responding to emergencies; and providing support where they are best placed to help those in fuel poverty and to those most at risk of being left behind in the transition to net zero.
- 2.29 The role of financial or reputational incentives, and our approach to determining which type of incentive to use in these different circumstances, is discussed further in Chapter 4.
- 2.30 Finally, it is vital that as we transition to net zero that network companies can improve data and processes to provide timely connections and give a clear understanding of network conditions, ensuring new clean power can connect to the grid as quickly as possible. In recent years, unprecedented numbers of electricity network connection applications have created challenges across the whole system. Around half of contracted distribution connections are now dependent on transmission reinforcements and new connection dates are typically in the 2030s in many parts of the country for transmission connections. November's Connections Action Plan (CAP)¹⁰ sets out specific reforms related to how we and government intend to work with industry to reduce the length of the connections queue. This work will require careful coordination with network investment during future price controls to ensure that the reforms are cognisant of a growing network, and that network investment plans are cognisant of changing customer behaviour because of the reforms.

System efficiency and long-term value for money

- 2.31 It is important to ensure that these outcomes for RIIO-3 are delivered and achieved at low cost for existing and future consumers. Our network regulation seeks to find the right balance between enabling the rapid pace of investment

¹⁰ [Decision on accelerating onshore electricity transmission investment \(ofgem.gov.uk\)](https://www.ofgem.gov.uk/consult/condocs/cap/cap19/cap19.htm)

needed to deliver net zero (by setting a funding framework that provides sufficient certainty and adaptability) and ensuring consumers get a fair deal now and in the future (by incentivising efficient, well-justified expenditure). In this context, the assessment of the efficient level of costs that will enable network companies to carry out their activities and deliver an appropriate level of outputs for consumers is clearly a crucial element of both the price control setting process and the ongoing monitoring and review of the price controls.

- 2.32 In our Framework Decision, we concluded that from a cost assessment perspective, the RIIO-2 framework provides a suitable, adaptable starting point for RIIO-3. Nonetheless, we also expressed our intention to explore simplification opportunities in the cost assessment process and more generally for cost efficiency incentives wherever possible. Given their cross-sectoral nature, we discuss proposals associated with Real Price Effects (RPEs) and ongoing efficiency in Chapter 9. Our proposals and current thinking for the cost assessment approach for each sector are covered in the relevant sector specific annexes.
- 2.33 The costs of operating and developing the energy networks also includes the financing costs that the network companies incur. We have sought to maintain stability of the financial framework through our Framework Decision. This broad regulatory stability aims to give investors the confidence to continue to invest in the sector and helps us to achieve a low cost of capital without constraining our ability to act in the interests of consumers by adapting to changing circumstances and through adopting best practice. We are working to develop stable and predictable financial policies and methodologies reflecting our position from RIIO-2, but also recognise that evolution, particularly to deal with macro developments that create new challenges or where updates to best practice can be identified, can bring greater regulatory stability and credibility. Striking the right balance will be critical for ensuring that the financial package is 'investable' as well as financeable according to our statutory duties.
- 2.34 The additional consideration for RIIO-3 is that the ET and gas sectors are starting to face very divergent macro challenges which may require very different regulatory finance solutions and us to take thought-leading positions.
- 2.35 For ET, there is a step-change in infrastructure investment needs across GB to build a more flexible and more secure energy system that supports the transition to net zero at pace. To deliver this, electricity transmission network companies will need to seek 'fresh' equity from their investors over and above what they would be able to fund via retained earnings, and at a time where there is greater competition for investment and capital in the UK water and global regulated

infrastructure sectors. We plan to develop the notion of 'investability', alongside our existing financeability assessment, to better understand whether the allowed return on equity is sufficient to retain and attract the equity capital that the sector requires. This may involve pulling a combination of existing regulatory levers as well as new tools being developed. We welcome views and evidence from stakeholders on how investability should be used and assessed with the above objective.

- 2.36 The challenges for the gas sector are different with demand expected to fall over time as the energy system adapts to support the transition to net zero. As set out in the Framework Decision, a key strategic question for RIIO-3 is how to ensure efficiency in future spending for safe, resilient and reliable networks to meet consumer demands but also fairness in how different generations of gas consumers pay for the sunk costs of historical and future investment in the gas network.
- 2.37 For GD and GT, since RIIO-2 we have had greater clarity on government net zero policy and potential decarbonisation pathways under the ESO's Future Energy Scenarios (FES). The latter forecasts a significant reduction in gas volumes in distribution and transmission across all four of its key scenarios. A key implication is the present value of the current level of depreciation charge per consumer is forecast to fall significantly short of the remaining RAV. This raises the question of who should pay for the gap. Hypothetically, the possible avenues are government/taxpayers, investors, a smaller number of consumers who remain on the network in future, current consumers while the user base remains at its peak, and third-party entities who purchase assets for repurposing into hydrogen or CCUS applications.
- 2.38 While recognising that government policy can change, Ofgem bases decisions on the current stated position and how that flows into Ofgem's remit. Our price controls need to be financeable in their own right, which also means we need to be very cautious in trying to avoid creating asset stranding risk, which could undermine regulatory stability and predictability and is unlikely to be in the consumer interest. On this basis, we must plan to recoup the costs from current and future consumers, and to protect consumers this may mean there is merit in leaving some optionality for transfers of repurposable assets to third parties.
- 2.39 In Chapter 10 and the Finance Annex we set our policy aims in this context, which in summary are to ensure that (i) consumers tomorrow do not pay a significantly higher charge for deriving materially the same value from their use of the gas network and (ii) consumers today pay no more than is necessary. We

are considering the use of regulatory depreciation as a tool to try to achieve both policy aims. At this stage we are only seeking to present our initial analysis of the potential issues and implications of not changing from the status quo. We welcome views and evidence on this matter which we will take into consideration for taking a decision at SSMD.

- 2.40 We also believe that it is prudent to pre-empt potential impacts on financial resilience that the macro challenges pose to electricity transmission and gas sectors. For electricity transmission sector, the increased importance of delivering the network investment to consumer outcomes and the government's ability to achieve net zero means that consumers and wider society stand to face greater loss if financial resilience is a constraint to on-time delivery. For gas, if RAV is returned more quickly this could create implications for financial resilience if licensees do not reduce indebtedness. Whilst we continue to expect companies to manage their own financial risks and for shareholders to directly gain or lose as a consequence of their choices, we need to consider measures which provide clearer early warning signs and more incentives for company management and investors to act in financially responsible ways in the event of financial deterioration, whilst minimising the impact on companies which are financially resilient.
- 2.41 In Chapter 10 and in the Finance Annex we also set out in more detail our proposals to maintain a stable and predictable financial framework and to promote financial efficiency and long-term value for money for RIIO-3. At this stage we focus the discussion on principles, policies and methodologies, rather than numerical assumptions or other figures. We are keeping options open but have provided meaningful levels of detail for stakeholders on our preferred options. Following consideration of responses and any other evidence received, we intend to provide an early view on the cost of capital, amongst other parameters, at SSMD, which will help inform the assumptions used for the business plan financial model.

3. RIIO-3 process

RIIO-3 key dates and timeline

3.1 Following this consultation, we will make our decision on the sector methodologies for the GD, GT and ET RIIO-3 price controls through the SSMD in Spring 2024. There will be opportunities for stakeholders to continue to engage through working groups as we work towards our SSMD.

Date	Indicative high-level milestones for RIIO-3
March 2023	FSNR Framework consultation
October 2023	FSNR Framework decision
December 2023	Sector specific methodology consultation (SSMC)
Q1 2024	Draft Business Plan Guidance consultation
Q2 2024	Sector specific methodology decision (SSMD)
Q2 2024	Final Business Plan Guidance
July 2024	Companies draft submission of Business Plan Data Templates (BPDT) and supporting commentary
December 2024	Companies' final submission of Business Plans (inc. BPDTs)
Q2 2025	Draft Determinations
Q4 2025	Final Determinations
Q4 2025	Informal licence consultation/licence drafting working groups
December 2025	Statutory Licence Modifications Consultation
February 2026	Licence decision
April 2026	Start of the RIIO-3 price control for ET, GT and GD

Business planning process

3.2 To set regulated revenues and required outputs for the network companies, we require information on the activities that companies intend to undertake over the price control and their associated costs. Network companies provide this information to us in the form of a Business Plan, supplemented by additional files.

3.3 We issue Business Plan Guidance which sets out the information that should be included in the Business Plans and examples of best practice, while giving companies agency to push the frontier on the quality of Business Plans.

- 3.4 In our Framework Decision,¹¹ we set out our intention to streamline the Business Plan Guidance for RIIO-3, making it more targeted to drive a higher degree of consistency and comparability across companies' plans.
- 3.5 Ahead of publication of the Final Business Plan Guidance, we will be working collaboratively with the network companies to develop the suite of RIIO-3 Business Plan Guidance documents. This engagement will focus on achieving the right balance so Ofgem obtains the information it needs to set the price control, while reducing the regulatory burden on network companies in producing the Business Plans and Ofgem in assessing them.
- 3.6 We will be holding engagement sessions with network companies and stakeholders to discuss and develop the following suite of documents:
- Business Plan Guidance document - sets out the information that should be included in companies' Business Plans and how we will assess those plans. This will also include guidance on RIIO-3 Enhanced Engagement framework (including the role of Independent Stakeholder Groups (ISGs));
 - BPDT Instructions and Guidance - sets out instructions for completing the BPDTs that support the submission of the company Business Plans;
 - Engineering Justification Papers (EJPs) Guidance - sets out the framework to be used to generate EJPs for load and non-load related investments aimed at reinforcing the network, managing asset risk, or improving network performance; and
 - Cost Benefit Analysis (CBA) Guidance - sets out the framework to be used to produce CBAs to justify potential interventions.
- 3.7 We intend to informally consult on draft guidance for these four documents in Quarter 1 2024, which will allow us to seek further feedback to inform and refine the final versions of the guidance that will be published alongside the SSMD by the end of Quarter 2, 2024.

¹¹ [Decision on frameworks for future systems and network regulation | Ofgem](#)

4. Future of Gas

- 4.1 While it is clear that the pathway to net zero will involve significant further electrification, the exact extent, speed and geographical variance in the transition away from gas is uncertain. This chapter considers strategic issues relating to this transition uncertainty and the potential future role of hydrogen. It also sets out how Ofgem proposes to handle uncertainty through the way companies are asked to plan for future scenarios.

Future of gas networks and hydrogen

- 4.2 Achieving net zero may involve a number of technologies, including electrification, CCUS, heat networks and hydrogen. Each possible pathway or combination of interventions would result in a very different future use of the gas networks, which could have implications for the decommissioning and/or repurposing of the GD and GT networks.
- 4.3 Natural gas demand is expected to decline in all future scenarios, although we note that demand will not necessarily reach zero in all scenarios due to the potential role of hydrogen and CCUS in decarbonisation. However, it is currently uncertain what impact this will have on the existing GT and GD networks, and when this impact will occur. The overall balance of repurposing, decommissioning and retaining natural gas assets, as well as the speed and timing of any changes, will be influenced by future government decisions such as the role of hydrogen for home heating.
- 4.4 As set out in the Open Letter on Future of Gas Price Controls, we do not currently anticipate that there will be large-scale, systematic changes to the gas networks during the RIIO-3 price control period.¹² However, to protect both consumers and have regards to the financeability of licensees, we consider it is important to develop the flexibility within the price control to manage the strategic uncertainties around the future of gas networks, ensuring efficiency in future investment and fairness and certainty in how costs are recovered.

Hydrogen and RIIO-3

- 4.5 Parts of the existing gas network could be repurposed to create new hydrogen or CCUS networks to support the net zero transition. In particular, the extent and

¹² Open Letter Decision on the Future of Gas Price Controls, p8: [Open Letter Decision on the Future of Gas Price Controls | Ofgem](#)

location of potential repurposing for hydrogen could have a large impact on the gas networks in the future.

- 4.6 Hydrogen will have a role in decarbonising the UK economy and can provide greener, flexible energy across industry, power, transport and potentially heat (although we note this is currently the most uncertain end use of hydrogen). Government has set a number of ambitions for developing the hydrogen economy, including setting a target to deliver up to 10GW of hydrogen production capacity by 2030.¹³

Hydrogen transport infrastructure

- 4.7 To support the 10GW hydrogen production target, government has committed to designing new business models for hydrogen transport and storage infrastructure by 2025. Government has published its minded-to position that the Hydrogen Transport Business Model (HTBM) should include a Regulated Asset Base (RAB) to facilitate and support the financing of certain hydrogen pipeline projects,¹⁴ and the Energy Act 2023 enables this. We are working closely with the Department for Energy Security and Net Zero (DESNZ) to support the design and implementation of the HTBM and we are carefully considering the interactions with RIIIO-3 to ensure coherency across the two frameworks.
- 4.8 As the development of hydrogen transport infrastructure will be supported by the HTBM, we consider that costs relating to the construction of new hydrogen transport infrastructure will be funded through the HTBM and are therefore out of scope of the RIIIO-3 price controls. Government is also intending to provide an update in Q2 2024 on its approach under the HTBM to funding development expenditure, such as feasibility studies. As such, we consider funding development expenditure for hydrogen infrastructure to be out of scope for RIIIO-3. We will work with government to ensure a smooth transition.
- 4.9 Costs to repurpose existing natural gas infrastructure for hydrogen are also generally intended to be included in the HTBM. However, we do not currently have a clear understanding of all the activities and costs required to repurpose natural gas assets and whether it is appropriate for RIIIO-3 to provide some funding towards specific repurposing activities. For this, we need to have

¹³ British energy security strategy: <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy>

¹⁴ DESNZ Hydrogen transport and storage infrastructure: minded to positions: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1175804/hydrogen-transport-storage-minded-to-positions.pdf

confidence that there is a clear benefit to natural gas consumers. We welcome evidence of what activities would be required to repurpose natural gas assets, and their associated costs, in response to this consultation.

- 4.10 There could also be preparatory costs relating to the development of hydrogen infrastructure, or repurposing of natural gas assets, that may be appropriate to be funded through RIIO-GD3 or RIIO-GT3, such as well-justified low regrets work to prepare the network for repurposing, where there is confidence in the need and clear benefits to natural gas consumers can be identified. However, we do not currently have a clear view of what these activities or the associated costs would be, especially preceding the development of a strategic plan for hydrogen infrastructure. We welcome evidence of what these activities and costs could be in response to this consultation. As the use of hydrogen for heat is particularly uncertain, we would not expect to fund work where the benefits are contingent on hydrogen heating ahead of government decisions in this area in 2026.
- 4.11 To facilitate the repurposing of assets, we will also need to enable the transfer of assets between RIIO-3 and the HTBM. We will work closely with DESNZ to build this into the design of both RIIO-3 and the HTBM. We expect there will be similar considerations if any transfer of repurposed assets between RIIO-3 and the CCUS Transport and Storage business model is necessary.

- OVQ1. Do you agree with our proposal for how RIIO-3 should interact with the Hydrogen Transport Business Model?
- OVQ2. Are there any additional activities relating to the development of hydrogen transport infrastructure, or repurposing of natural gas assets, that you think should be funded through RIIO-3, and if so, why do you think this is justified?

Hydrogen blending

- 4.12 Hydrogen blending refers to the blending of hydrogen with other gases (primarily natural gas and including biomethane) in pre-existing gas network infrastructure and appliances.
- 4.13 Government has set an ambition to reach a strategic policy decision in 2023 on whether to support the blending of up to 20% hydrogen by volume into the GB GD networks.¹⁵ Government's decision will be subject to a review of blending safety evidence, and there may be further economic assessment to support a final decision. As such, government does not currently anticipate blending at a

¹⁵ Hydrogen Strategy 2021: <https://www.gov.uk/government/publications/uk-hydrogen-strategy>

commercial scale to commence in GB distribution networks before 2025 or 2026 at the earliest.¹⁶

- 4.14 Government will also separately assess the case for supporting transmission-level blending.
- 4.15 If hydrogen blending is implemented, this could lead to additional costs on the natural gas networks during RIIO-3, for example for new telemetry and monitoring equipment. While government decisions are currently focused on distribution-level blending, we note that government is separately assessing the need for transmission-level blending, so NGT could also potentially incur additional costs relating to blending. As the rollout of hydrogen blending is currently uncertain, we propose to enable costs relating to this at both the GD and GT levels to be recovered through the net zero related UMs discussed in Chapter 8.

OVQ3. Do you agree with the proposal that network costs relating to hydrogen blending at both distribution and transmission level should be included in RIIO-3 net zero related UMs? If so, which mechanism do you think is most appropriate for these costs and why?

Hydrogen heating

- 4.16 UK government has set an ambition to make a strategic decision in 2026 on whether to use hydrogen for domestic heating. We are currently supporting the creation of evidence to inform this decision through the RIIO-2 innovation stimuli and Net Zero UMs. We note that hydrogen heating is currently the most uncertain potential end use of hydrogen and in all future scenarios a substantial amount of domestic heating will be electrified. We therefore consider it particularly important to develop the flexibility within the price control to manage the uncertainty surrounding hydrogen heating.
- 4.17 If government decides to roll out hydrogen heating, additional investment will be required, eg in relation to a Hydrogen Heating Town pilot. However, it might not be appropriate for the funding for this new investment to come via RIIO-3, and other government-led hydrogen funding mechanisms may be used to cover some or all of these costs. A decision against the use of hydrogen heating could also potentially lead to new costs relating to decommissioning parts of the gas

¹⁶ Hydrogen blending into GB gas distribution networks:
<https://www.gov.uk/government/consultations/hydrogen-blending-into-gb-gas-distribution-networks>

network. Government would also need to determine who should pay for this. We will continue to work with government to understand the scope and implications of the 2026 hydrogen heating decision and what is the most appropriate way to fund any investment that may be required as a result, as well as any associated decommissioning costs.

- 4.18 If it is appropriate for RIIO-3 to fund network investment requirements or changes in spending as a result of the 2026 decision on hydrogen for heating, we propose these costs could be recovered through the Heat Policy re-opener outlined in the GD Annex, the net zero UMs discussed in Chapter 8, or a mixture of both.
- 4.19 There is also a possibility that further evidence around the ability to repurpose the existing gas network for hydrogen heating may still be needed to be generated following the 2026 decision. If this is required, and we consider it is appropriate for RIIO-3 to fund, we propose that costs relating to generating this evidence could be included in our RIIO-3 innovation stimuli or net zero mechanisms, as appropriate. Currently, we do not consider that these mechanisms will need to cover further hydrogen for heat evidence projects between the start of RIIO-3 and the governments' 2026 decision. If this is not the case, we would welcome views on any potential projects, justification for why they are needed to support government decision making, and their indicative materiality.

OVQ4. What are your views on the proposal of using the GD specific Heat Policy re-opener, the RIIO-3 net zero related UMs, or a mixture of both to fund network costs incurred as a result of the government's 2026 decision on hydrogen for heating (where RIIO is deemed to be the most appropriate funding mechanism for these costs)?

OVQ5. What are your views on our proposal to not enable funding for further evidence relating to repurposing the existing network for hydrogen heating ahead of government's decision on hydrogen heating in 2026?

Decommissioning

- 4.20 The extent and speed of any decommissioning of the existing gas network is subject to future government policy decisions, including the 2026 decision on hydrogen heating, as well as how much of the network is repurposed for other uses, such as hydrogen transportation. Who bears the burden of any

decommissioning costs - consumers, taxpayers or both - is also currently unclear and subject to future government policy decisions.

- 4.21 Depending on the extent to which the existing gas network is decommissioned, it is likely that there could be significant costs associated with this programme of work from the 2030s onwards. We will continue to work with government to consider how best to manage these future costs.
- 4.22 However, as set out in the Open Letter Decision on the Future of Gas Price Controls, it is unlikely that major parts of the gas network will start to become de-energised in a systematic way before the early 2030s.¹⁷
- 4.23 While we are not anticipating large-scale decommissioning costs during the RIIO-3 price control period, it is possible that government policy decisions or changes to the speed of the energy transition could lead to some decommissioning costs needing to be incurred during RIIO-3. If this is the case, we propose these can be recovered through the Heat Policy re-opener outlined in the GD Annex, the net zero related UMs discussed in Chapter 8, or a mixture of both. There could also be costs relating to projects that create evidence or develop thinking on the financial impact, required processes and regulatory barriers if large scale decommissioning is required. If so, we will consider if costs relating to this could be included in the RIIO-3 innovation stimuli or net zero related UMs.
- 4.24 We are also cognisant that future decommissioning costs post-RIIO-3 - to the extent they are significant and fall upon consumers - would be borne by an increasingly smaller base of gas network users. This raises a question of intergenerational fairness which is not dissimilar to that for regulatory depreciation.¹⁸ Notwithstanding uncertainty over government policy, it may be appropriate to enable funding for some anticipatory investment in future decommissioning liabilities to spread the burden of this expected future expense over current and future generations. We also note that, given the similarities, there may be merit in creating a level of alignment between this policy and regulatory depreciation policy, as discussed in the Finance Annex.

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

¹⁷ Open Letter Decision on the Future of Gas Price Controls, p8: <https://www.ofgem.gov.uk/publications/open-letter-decision-future-gas-price-controls>

¹⁸ For further details on this topic, refer to the Regulatory Depreciation chapter of the Finance Annex

5. Role of Scenarios and Planning Pathways

- 5.1 The scenarios and forecasts of energy demand and supply that companies use to establish the need for future network capacity play a crucial role in the price control setting process. Ensuring consistency in the use of scenarios and forecasts is important as it enables a fair and robust assessment of business plans.
- 5.2 In our Framework Decision, we said that consistent with the move to a whole system plan, it is our preference to use a common planning scenario for the electricity and gas networks. The choice of scenario should reflect the most credible view of the future and should be aligned with the objectives of the price control. We want to ensure that the scenario is developed and used in a consistent manner across companies and sectors.
- 5.3 Since the publication of our Framework Decision, we have developed our thinking on the approach to scenarios in RIIO-3. Specifically, we have analysed the credible range of scenarios for the RIIO-3 period and considered the trade-off between setting a common cross-sector scenario versus several sector-specific common scenarios. We hosted a cross-sector policy working group on this topic where we discussed the challenges with scenario planning for RIIO-3 and listened to stakeholder views across all sectors.
- 5.4 In this section we briefly summarise the approach to scenarios at RIIO-2 and outline our initial thinking and considerations for RIIO-3.

The role of scenarios and planning pathways in RIIO-2

- 5.5 We adopted a different approach to the role of scenarios in RIIO-ED2 to that used in the earlier RIIO-2 price controls for GD&T. For RIIO-2 GD&T, network companies worked with the Energy Networks Association to develop the Common RIIO-2 Scenario in 2019 which set out a consistent and whole systems view of future demand. The ESO's 2018 FES was used as the framework to establish common factors and assumptions for a core view of the future out to 2030. The work agreed a set of key drivers across the four sectors that would have the most material impact on the business plans in RIIO-2. In the RIIO-2 Business Plan Guidance we required companies to design their baseline revenues around parameters which were no greater than the lowest point of the scenario range resulting from this work.
- 5.6 For RIIO-ED2, we required DNOs to submit their business plans based on their own planning scenario developed from their Distribution Future Energy Scenarios (DFES). There was no requirement to apply standardised forecast parameters and

assumptions from a single common scenario. However, DNOs did have to demonstrate consistency with the net zero compliant scenario range of the ESO's 2020 FES and Climate Change Committee's (CCC) 6th Carbon Budget. To form their DFES each DNO augmented the national pathways into scenarios that were applicable for its licence area. While DNOs evaluated investment for a range of DFES pathways, final business plans were built on a core baseline scenario that reflected each DNO's best view of the pathway to net zero in its region.

- 5.7 The consequence of this was that DNOs submitted business plans on distinctly different DFES pathways, with differing views on the level of demand growth, the underlying assumptions around electric vehicle and heat pump uptake, as well as the impact of these scenario parameters on future network requirements. We controlled for these scenario differences within our cost assessment by including cost drivers that reflected the varying levels of forecast demand growth in our totex and disaggregated benchmarking.
- 5.8 Ultimately, all the RIIO-2 price controls were designed to deal with whichever future scenario materialised in period, and the RIIO-3 price controls will be no different - they will be sufficiently flexible to meet changing circumstances. While this is more important than agreeing a particular common view of the future at the price control setting phase, we do believe we need to revise our approach to scenarios for RIIO-3.

Scenarios in RIIO-3

Key considerations for a RIIO-3 Common Scenario

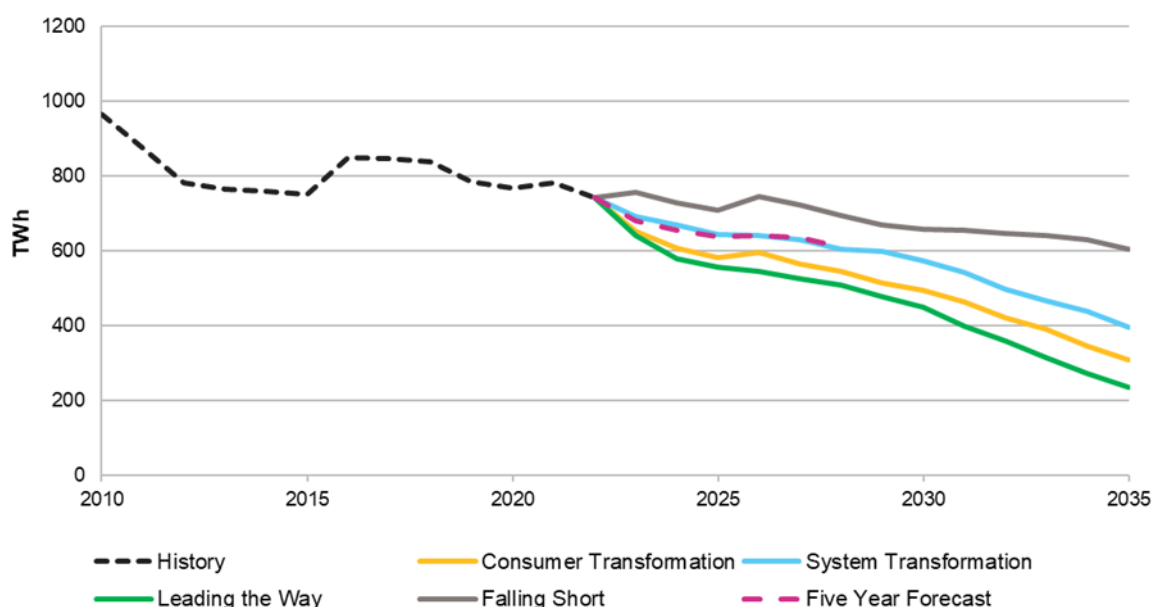
- 5.9 In determining the common scenario or set of scenarios to use for RIIO-3, we need to agree a consistent view of the level, characteristics, and underlying assumptions around future energy demand. This would include projections of electricity and gas demand, the power generation mix, peak demand, use of electric vehicles and heat pumps, as well as assumptions around energy efficiency and consumer behaviour. A suitable time horizon for any RIIO-3 scenario would need to at least project out to 2035.
- 5.10 However, the impact of the underlying scenario assumptions on network requirements will vary between sectors, and thus the ultimate choice of what scenario to plan against might differ in importance. We can assume that in ET and ED, a relatively higher share of network company totex will be subject to the choice of planning scenario, when compared with the gas networks. We know to expect significant growth in demand, connections, and consequently an increase

in network capacity for the electricity sector - the choice of scenario will determine the assumed speed of this growth for business planning. Whilst there may be some connections and capacity growth for the gas networks, the picture across all credible future scenarios is one of reducing demand. Whether there should be a common energy scenario across the gas and electricity sectors, and what the correct depth of consistency is, are questions that need addressing. Before we come to this question however, we first consider the suitable scenario frameworks that can inform any choice of a common pathway for RIIO-3.

- 5.11 The ESO's FES and the CCC's 6th Carbon Budget are publicly available sources that provide a credible range of scenarios for Great Britain. The FES and CCC both present a self-consistent scenario framework and possess sufficient granularity to meet the requirements listed above. However, whilst the CCC's 6th Carbon Budget was included in the approach taken at RIIO-ED2, it is now three years out of date and we think less useful for the RIIO-3 period. The CCC's 7th Carbon Budget will not be published until late 2025. In contrast, the ESO's FES is updated annually, with the latest edition published in July 2023.
- 5.12 The 2023 FES sets out four scenarios to 2050 which make considerably different assumptions about the short, medium, and long-term future:
- **Falling Short:** This scenario does not reach net zero by 2050 and represents the slowest credible decarbonisation pathway. Whilst it assumes decarbonisation in power generation and transport, it assumes minimal change in consumer behaviour and little decarbonisation of heat.
 - **System Transformation:** This scenario achieves net zero by 2050 with decarbonisation of heat achieved with hydrogen. It however assumes lower energy efficiency and minimal change in consumer behaviour.
 - **Consumer Transformation:** This scenario meets net zero by 2050 with electrified heating, significant changes in consumer behaviour and high energy efficiency.
 - **Leading the Way:** This is scenario represents the fastest credible decarbonisation pathway and assumes significant lifestyle change with electrification and some hydrogen decarbonising heating.
- 5.13 Figure 1 below shows historic and FES 2023 forecast gas demand (representing power, residential, industrial, and commercial demand). Since 2010 there has been an 18% reduction in gas demand, largely driven by a fall in industrial and power generation demand. The FES range displays significant variation in projections of gas demand by 2035, with a difference of ~400TWh between

Falling Short and Leading the Way - this equates to 50% of current demand. Falling Short assumes continued gas demand for power generation and residential heating and thus forecasts only a 6% reduction in gas demand by 2028. In contrast, Leading the Way assumes accelerated growth in heat pump uptake and offshore wind capacity, and forecasts a 30% reduction over the same period.

Figure 1: Historical and FES 2023 forecast gas demand



5.14 The 'Five Year Forecast' in Figure 1 above represents the ESO's best view of demand and supply over the short term. It is developed in a different way to the four scenarios but typically makes assumptions that sit in the middle of the scenario range. In the context of gas demand, it forecasts an overall 18% reduction by 2028, three times higher than in Falling Short. It aligns with Falling Short with regards to heat electrification, reflecting the current reality of the continued slow uptake in heat pumps. However, this is reflective of government policy choices and it assumes a greater reduction in demand for power generation and from industry relative to Falling Short. This is in part due to more ambitious assumptions around the growth in offshore wind capacity in the near-term.

Stakeholder views

5.15 We sought stakeholder views on scenario planning at a policy working group. There was broad support from the network companies for a sector-specific RIIO-3 common scenario. Whilst a common scenario will not remove uncertainty, there was broad agreement amongst companies, that within each sector, it would help ensure consistency across final business plans and aid Ofgem's assessment.

- 5.16 Several companies felt that a single common scenario is required for a consistent and transparent approach to network planning and brings the right investment drivers together to meet decarbonisation goals. However, there was clear cross-sector disagreement between gas and electricity as to which scenario should be selected.
- 5.17 Two TOs stressed that early confirmation of a RIIO-3 scenario is vital. Both argued that an ambitious scenario is required and is the least regret option for delivering at pace. They explained that basing investment plans on anything less ambitious will make government targets harder to meet on time. Both supported the use of a FES pathway with one stating that it is currently building its RIIO-3 plan on FES 2023 Leading the Way. It explained that this is consistent with meeting government generation targets and that whilst this is a very ambitious scenario, the current volume of contracted connections is already three times that expected to be required under the Leading the Way scenario.
- 5.18 Several network companies stressed the importance of ensuring any scenario is aligned with that used for the second iteration of the transitional Centralised Strategic Network Plan (tCSNP2)¹⁹ and CSNP. With the CSNP set to assume a single pathway for the near-term, it is important that sufficient consideration is given to its interaction with the eventual choice of a RIIO-3 planning scenario.
- 5.19 Conversely, another network company, while supportive of the 2050 net-zero goal, argued that the need to ensure energy security and network resilience should allow for investment against a pathway that in the medium term (out to 2035) aligns with FES 2023 Falling Short. It has recently developed a Common Planning Pathway (CPP), which is based on known government policies and meets net zero by 2050 but lies closer to the current reality for gas demand. It argued that this analysis supports FES Falling Short as the most credible scenario, projecting significantly higher overall gas demand than the three net zero FES pathways. It stressed that this reinforces the point that gas network investment will be required for some time and that planning on the net zero FES range alone could result in significant underinvestment and present a risk to energy system resilience. In its view the FES net zero projections for offshore wind expansion are not credible, and any capacity shortfall in offshore wind will ultimately mean more gas-fired generation is required. This is one of the key assumptions underpinning the projection of higher overall gas demand in the medium term

¹⁹ The tCSNP is being used as we transition to the new CSNP for network planning purposes.

under this pathway. It concluded that planning the gas networks to CPP/Falling Short allows for whole system optionality and strikes the right balance, by managing the risk of energy security and resilience but still enabling a net zero transition by 2050.

Our RIIO-3 proposals

- 5.20 We currently consider the FES to be the best available framework for informing the scenario choice in RIIO-3. Selecting a FES pathway would avoid the considerable work required to develop something bespoke for the price control and would provide the sufficient granularity required for network planning. However, we note that there are timing issues given that the current FES 2023 would be 18 months out of date at the time of business plan submissions in December 2024. There will be another iteration of the FES published in July 2024, and we note the timing of this and its interaction with the CSNP.
- 5.21 We recognise the challenge of prescribing a single common scenario across all sectors for RIIO-3. As demonstrated by the FES 2023 scenario range, there is still significant uncertainty as to the pathway to net zero, particularly around the transition for gas. Whilst we want comparable and consistent business plans, we also want to ensure whole system resilience against the backdrop of this future uncertainty. We acknowledge the need for the electricity networks to plan on an ambitious scenario that is aligned with government targets, in order to deliver at pace and ahead of need. For this reason, we propose to ask all network companies to build their plan on the basis of the FES Leading the Way scenario. However, in recognition of the uncertainty around gas demand and the need for ongoing energy security and network resilience, we propose to ask the gas networks to also cost a more conservative common scenario across gas transmission and distribution. This will provide important information on the ways in which their business plans differ between these two scenarios and the cost implications. We continue to have reservations around the credibility of using Falling Short as a planning pathway, based on the fact that the FES best view 'Five Year Forecast' expects gas demand to be considerably lower by 2028, relative to Falling Short. However, at this stage we are proposing that gas network companies do use Falling Short as the common conservative scenario, and we welcome feedback on this proposal.
- 5.22 We are also conscious that RIIO-3 business planning will take place at a time when the ESO will be updating its FES in summer 2024 and creating a Strategic Spatial Energy Plan (SSEP). While the FES will remain in future years, the SSEP is

expected to become the primary input to the CSNP (covering electricity and gas transmission). The FES 2024 will introduce demand and supply pathways to 2050 and support the creation of the SSEP. Where feasible, we want to make sure that RIIO-3 business plans are based on the latest planning information. Therefore, we propose that all network companies start planning on the basis of FES 2023 Leading the Way, with the gas networks planning against Falling Short as an additional common conservative scenario. Following publication of FES 2024, we propose that all network companies update their plans to reflect the latest FES assumptions. In practice this would mean preparing Draft BPDTs against FES 2023 and then updating Final Business Plans and BPDTs to align with FES 2024, with the gas networks also planning against the additional common conservative scenario.

- OVQ7. Do you agree with the proposal to use the FES framework for selecting the RIIO-3 scenarios?
- OVQ8. Do you agree with the proposal to use FES Leading the Way as the planning scenario for ET in RIIO-3?
- OVQ9. Do you agree with the proposal to use two FES planning pathways for the gas networks, ie Leading the Way and Falling Short as the additional common conservative scenario?
- OVQ10. Is Falling Short the most appropriate common conservative planning scenario to be used for the gas networks? Or is a common gas network developed scenario more appropriate?
- OVQ11. Is it feasible for all network companies to initially plan against FES 2023 before updating business plans in line with FES 2024, as proposed?

6. Outputs and Incentives

Introduction

- 6.1 In Chapter 2 we set out the key outcomes that we expect network companies to deliver in RIIO-3, and in our Framework Decision we noted our decision to continue to use outputs and incentives to drive the delivery of these outcomes. We think that the use of outputs will continue to ensure high standards of service and supply and will enable us to hold companies to account for customer experience with proportionate monitoring. Incentives will drive performance improvements in areas that matter most to consumers, with rewards for outperformance and penalties for poor performance where necessary.
- 6.2 In our Framework Decision, we also said that we thought the current toolkit of outputs (licence obligations (LOs), price control deliverables (PCDs) and output delivery incentives (ODIs)), strikes the right balance between enhancing transparency and ensuring accountability for output delivery.
- 6.3 Since the publication of our Framework Decision, we have engaged with stakeholders through working groups to discuss our approach to setting outputs for RIIO-3. We have taken this feedback into account when developing our proposals.
- 6.4 In this Chapter, we outline our proposed overarching framework for outputs in RIIO-3. We welcome views on whether there are any alternative outputs, mechanisms or considerations that we should reflect on.

Licence Obligations

Background

- 6.5 In RIIO-2, we set minimum standards of performance through the introduction of LOs. In cases where we find that network companies have breached these minimum standards, we can take enforcement action and/or issue penalties. Examples of areas where we currently have LOs include the minimum timescales for the delivery of specified connections services and the minimum timescales for the restoration of power following an outage.

Our RIIO-3 proposal

- 6.6 In our Framework Decision we said that we would continue to use LOs to set minimum standards. For RIIO-3, we propose to update existing minimum

standards where appropriate and will consider setting new minimum standards where required.

- 6.7 In doing so, we will consider the extent to which proposing stricter minimum standards would deliver benefits to consumers and the extent to which they would require an increase in related cost allowances.

Price Control Deliverables

Background

- 6.8 In RIIO-2, we introduced PCDs to ensure that allowances allocated for the delivery of specific activities or projects could be automatically returned to consumers if those projects were no longer required or were delivered to a materially different specification.
- 6.9 We established two types of PCDs:
- evaluative PCDs - these can be used where the exact work delivered has potential to vary from the company submission, either in cost, output or timing of delivery; and
 - mechanistic PCDs - these can be used in cases where an activity is typically repeatable and can be defined by volumes or numbers of units of deliverables and we can set allowances by reference to the unit costs.

Our RIIO-2 approach

- 6.10 In RIIO-2, we said that network companies should consider applying PCDs to discrete projects or activities for which they were seeking baseline funding as part of their business plan submissions.

PCDs and materiality thresholds

- 6.11 We did not set a materiality threshold for projects or activities that could be proposed as a PCD for GD, GT or ET companies. However, we set a materiality threshold of £15m per project for electricity distribution companies. This was to help promote a consistent approach between DNOs in their approach to bringing forward bespoke PCD proposals, whilst also ensuring proposals were sufficiently material.

PCDs and allowances

- 6.12 As part of their RIIO-2 business plan submissions, we asked network companies to set out proposed outputs, delivery dates and forecast costs for projects and activities that they considered suitable for PCDs.

- 6.13 We assessed this information and in cases where we thought PCDs should be applied, we set allowances for these at the outset of the price control.
- For mechanistic PCDs, we set allowances by reference to the unit cost and the number of units forecast to be delivered in the price control; and
 - For evaluative PCDs, we set allowances based on the scope of work to be delivered during the price control.

PCDs and LOs

- 6.14 For each PCD, we specified in LOs:
- the output(s) that we expected the relevant network company to deliver;
 - the date by which we expected the output(s) to be delivered; and
 - the allowance associated with delivering the output(s).
- 6.15 We also set out the consequences for the failure to deliver, late delivery, or delivery to a lower-than-expected standard. This could include for example:
- the downward adjustment of allowances to reflect actual work delivered; and
 - the automatic deferral of allowances in the event of delay to delivery.
- 6.16 For mechanistic PCDs, we encoded automatic adjustments to allowances to reflect actual work delivered in LOs. For evaluative PCDs, we said that we would carry out ex-post assessments of PCD delivery²⁰ to adjust allowances for non-delivery, delays to delivery or changes in scope of work.

PCDs and UMs

- 6.17 In some cases, we attached UMs to PCDs where there was some uncertainty around the project or activities being proposed by network companies.
- 6.18 In cases where we were unsure if a certain PCD activity would result in any significant follow-up work which had not been funded at the outset of the price control, we attached a re-opener to that PCD. This allowed us to adjust allowances once the scope and costs of any follow-on work was better understood.
- 6.19 For example, we may have packaged a feasibility study (to explore the most efficient solution to a specific network issue) as a PCD. As the project was expected to recommend a specific option for implementation, we would have

²⁰ [RIIO-2 Draft Determinations for Transmission, Gas Distribution and Electricity System Operator | Ofgem](#)

considered attaching a re-opener to the PCD to adjust allowances once the scope, and the expected costs of the proposed solution were known.

- 6.20 Conversely, in some circumstances we attached empty evaluative PCDs (with no deliverables, delivery dates or allowances) to re-openers. This allowed us to hold companies to account for delivering projects or activities that had been approved by us, midway through the price-control.

PCDs and delays to delivery

- 6.21 In cases where network companies deviate from the requirements set out in the PCD licence obligations, we undertake an ex-post assessment to adjust allowances accordingly.
- 6.22 Where a PCD has been funded at the outset of the price control but is no longer required or needs to be delayed due to circumstances that are outside of the control of the network company (eg because of a change in government policy), network companies are allowed to recover efficient costs incurred prior to taking the decision to cancel or defer the deliverable.

PCDs, changes in scope and efficiency

- 6.23 For evaluative PCDs, network companies should seek to innovate and deliver the most efficient solution. Network operators do not need to follow their original plan where a more efficient alternative is available.
- 6.24 In cases where network companies delivered an alternative solution to that originally proposed in a PCD which resulted in efficiency savings, network companies can keep a portion of any underspend benefit provided they can:
- demonstrate that the alternative delivers an outcome for consumers that is equivalent or better than the original; and
 - that any cost savings achieved (relative to allowances) are genuinely attributable to efficiencies or innovation.

RIIO-2 Lessons Learned

- 6.25 The vast majority of PCDs that we set in RIIO-2 have not been delivered yet, which limits the evidence we can use to identify lessons learned and opportunities for improvement. However, we conducted a series of working groups and bilateral meetings with cross-sector stakeholders to gather their views and feedback.
- 6.26 Stakeholders broadly agreed that both mechanistic and evaluative PCDs are effective tools for holding network companies accountable for delivery, but there

needs to be more consistency around how they are scoped, designed and applied. We've summarised key feedback below.

PCDs and materiality thresholds

- 6.27 Most stakeholders said that PCDs should only be applied to projects associated with material costs, to reduce the regulatory reporting burden. However, some stakeholders also noted instances where it could be beneficial to package smaller projects with low materiality as PCDs. This particularly applied to projects that are rolling-out and commercialising innovation projects on a larger scale.
- 6.28 Network companies said that the categorisation of these projects as PCDs, excluded them from the RIIO-2 benchmarking process. As a result companies were not adversely affected for proposing novel work that was not being undertaken by other companies.
- 6.29 Network companies also said that the treatment of these projects as PCDs meant that allowances were ring-fenced and could not be cutback in the event of overspend in other areas of the business. Stakeholders suggested that if we were considering removing these types of projects from the PCD framework, we should develop a mechanism that protects their funding.

PCDs and UMs

- 6.30 Stakeholders said that our approach of attaching re-openers to some PCDs seems sensible. This is especially true for the gas transmission sector, where significant projects are stage-gated and reviewed at every stage of the project lifecycle.
- 6.31 Conversely, in some cases, we have found that attaching PCDs to re-openers has hindered the projects that we have approved through the re-opener process. This is because the proposed projects could not be defined by clear deliverables, budget or delivery date.

PCDs and delays to delivery

- 6.32 As the majority of PCDs have not been delivered yet, stakeholders noted that it is difficult to gauge the effectiveness of our ex-post assessment framework, especially in relation to how delays to delivery are treated.
- 6.33 One network company said that it would be beneficial to incorporate flexibility around the delivery date for some PCDs and suggested setting a deadband around the target date.
- 6.34 It was noted that significant investment in network infrastructure is expected over the next price control and implementing strict penalties from day 1 of a

delay is in not necessarily in the interests of consumers, especially for large projects where project scope is likely to change.

PCDs, changes in scope and efficiency

- 6.35 Network companies said that in RIIO-2, we set PCD requirements that in some cases, were input focussed and too granular. This has created a perverse incentive for companies to continue delivering fixed outputs even when better, more efficient solutions have been identified. This is because of concerns that they will be penalised in ex-post assessments for non-delivery.
- 6.36 Network companies also noted that there have been cases where they have delivered outputs that go beyond those set out in PCD LOs. In instances where this has resulted in network companies exceeding the allowance, it was suggested that PCD mechanisms should allow allowances to adjust upwards and reflect actual work delivered.

Our RIIO-3 proposals

- 6.37 We propose to continue setting evaluative PCDs in cases where the exact work delivered has the potential to vary in part from the company submission, either in cost or in output.
- 6.38 Similarly we propose to continue setting mechanistic PCDs where work can be defined by:
- volumes or numbers of units of deliverables;
 - activities that are typically repeatable; and
 - where we can set allowances by reference to the unit costs.
- 6.39 We note stakeholders' feedback, especially around the need to reduce the regulatory reporting burden for PCDs. In our Framework Decision, we said that we would address this by tightening the criteria for the types of activities that can be proposed as evaluative and mechanistic PCDs. In line with this, we propose that PCDs should capture those outputs that:
- directly contribute to the RIIO-3 outcomes or need to be delivered in line with government legislation, standards or guidance;
 - are material;
 - can be defined by clear deliverables, and delivery dates; and/or
 - will be delivered over multiple price controls.

PCDs and materiality thresholds

- 6.40 Our current thinking is that PCDs should only be applied to large projects that have the potential to cause consumer detriment in the event of failure to deliver, late delivery or delivery to a lower-than-expected standard. We think this approach will reduce the regulatory reporting burden associated with PCDs.
- 6.41 We propose to establish a materiality threshold for projects or activities that network companies can submit as PCDs in their business plans. We would welcome feedback on the level of this materiality threshold.
- 6.42 We do not think that it is necessary to apply PCDs to projects that are rolling-out or commercialising innovation projects on a larger scale. We think that stakeholder concerns around this can be mitigated by:
- network companies submitting these projects as bespoke outputs as part of their business plans; and
 - clearly justifying why proposed allowances should be technically assessed as opposed to benchmarked.
- 6.43 We will consider the treatment of any proposed innovation based PCDs during our cost assessment.

PCDs and UMs

- 6.44 We think that in RIIO-3 there will continue to be instances where there is some uncertainty around the project or activities being proposed by network companies. In these cases, we think that it would be appropriate to attach re-openers to PCDs and propose to continue using this approach in RIIO-3 where appropriate.

PCDs and delays to delivery

- 6.45 As a general principle, we think that companies should not benefit from a delay in delivery or non-delivery of PCDs. As such we propose to continue linking PCDs to LOs that set out the consequences of this.
- 6.46 We also propose that network companies should not be penalised for a delay in delivery or non-delivery of PCDs where the reasons for this are outside of their control. We think that our RIIO-2 ex-post assessment framework has sufficient flexibility to account for this, and we propose to implement this framework in relation to RIIO-3.

- 6.47 We note stakeholders' concerns that significant investment is expected in the next price control and that evaluative PCDs need to be as flexible as possible to accommodate changes in scope that will affect delivery deadlines.
- 6.48 Whilst we agree that small delays to project delivery may not necessarily result in immediate detriment to consumers, we are concerned that in the medium to long term, multiple delays could affect our ability to achieve net zero by 2050.
- 6.49 We propose that as part of their Business Plans, and where appropriate, network companies should identify the potential consequences of any delay or failure to deliver PCDs. This should include considerations of any potential detriment to consumers as well as the transition to net zero. We will use this information when considering any penalties that we set for late delivery or non-delivery in LOs.

PCDs and changes in scope and efficiency

- 6.50 We want our PCD framework to achieve the right balance between encouraging delivery and enabling flexibility. We note stakeholder concerns that setting granular PCD requirements prevents network companies from re-optimising their work to respond to changes and agree that in some cases this could be detrimental to consumers.
- 6.51 We want to adapt our RIIO-2 approach and set PCDs that are more flexible. We propose that this can be achieved by setting PCDs outputs that are outcome focussed.
- 6.52 In cases where network companies are able to deliver PCDs with genuine efficiencies, we propose to continue our RIIO-2 approach of allowing network companies to keep a portion of the underspend.
- 6.53 In cases where network companies overspend their allowance and this is attributable to a change in scope that delivers additional benefits for consumers, we would welcome feedback on how any overspend should be shared between companies and consumers. We would also welcome feedback on the risks and benefits of this proposed approach.

OVQ12. Do you agree with our proposed approach on the role, scope and format of PCDs?

Output Delivery Incentives

Background

6.54 We use ODIs to incentivise network companies to improve the delivery of services in areas that matter most to consumers. There are two types of ODIs:

- Financial Output Delivery Incentives (ODI-Fs): these are set when we want network companies to deliver service quality improvements which go beyond the minimum standard, where this is in the interests of consumers. Network companies are rewarded or penalised dependent on their performance relative to a target level or relative to other companies.
- Reputational Output Delivery Incentives (ODI-Rs): these are applied where value to the consumer cannot easily be demonstrated or quantified, or when we require greater transparency or data on network companies' activities in a certain area.

6.55 ODIs are usually common to all network companies within a sector. This helps to ensure that consumers receive a similar level of service regardless of where they are located in GB. However in some cases the network company has unique requirements and circumstances which are based on its local geography and the needs of its local customers. Therefore, network companies can also propose bespoke ODIs where they can justify why the output is required in addition to the common arrangements.

Our RIIO-2 approach

ODI-Fs

6.56 In RIIO-2, we used financial incentives to drive service improvements for customers where:

- we and stakeholders considered delivery of the service improvement to be important;
- there was clarity on the service improvement to be delivered;
- there was confidence in the data used to set targets and measure performance;
- we were able to monitor network company performance through quantifiable metrics; and
- there were not already incentives in place on the network company through other schemes or obligations.

Target Setting

- 6.57 We endeavoured to set stretching targets that delivered value for money for consumers. We considered two types of approaches to target setting when developing financial incentives:
- Static targets - where a baseline target is set at the beginning of the price control and is maintained at the same level throughout the price control; and
 - Dynamic targets - where a baseline target is set at the beginning of the price control, but the target evolves throughout the price control to take account of companies' ongoing performance.
- 6.58 In the majority of cases we set static targets. This is because we had robust data on network company performance and could use this to set stretching targets that companies could strive to achieve throughout the price control. We recognise that this approach provides clarity to network companies on the level of performance that they should be aiming to achieve at the outset of the price control and allows them to invest in their capabilities accordingly.
- 6.59 In some cases we used dynamic targets, but this tended to be when we were less confident in our data of network company performance and wanted to reduce the risk of over/under performance. This approach helped to ensure that service improvements were continually embedded and targets remained stretching. We recognise that in some cases this approach can risk disincentivising good performance, with companies maintaining a service level sufficient enough to continue earning rewards instead of driving significant improvements.
- 6.60 Our preferred approach was to set targets based on historic network company performance. This helped set stretching but achievable targets that best reflected the nature of the sectors.
- 6.61 Where appropriate we considered using frontier company performance to set targets. We tended to use this in sectors where there were multiple licensees, where we wanted to drive competition and where we had good evidence of consumer value and cost of delivery.
- 6.62 Where available, we also used performance data from other sectors eg water, and retail to inform our target setting, to ensure that consumers could expect service levels similar to those seen in other sectors.
- 6.63 We either set common or bespoke targets. Our preference was to set common targets to help ensure that consumers received similar service levels regardless of their geographic location and we wanted to drive collaboration between network

companies. However, in some cases we set bespoke targets where companies had regional circumstances or customer needs that needed to be considered.

6.64 For some incentives, we used deadbands; a specified range of performance where network companies did not receive either a reward or a penalty. We tended to use this:

- for new incentives, where we were less confident in our target setting due to limited data and did not want network companies to be unduly penalised for this;
- for more mature incentives, where network companies were consistently achieving a good level of performance and we wanted to embed this service level in the next price control, so we focussed on material deviations from the target rather than unduly penalising/rewarding companies for small deviations in performance; and
- where there were some factors outside of network companies' control and we did not want network companies to be unduly penalised or rewarded for this.

6.65 We also set targets and deadbands as late as possible in the price control setting process. This was to ensure that we had the most up to date data on network company performance.

Strength of financial incentives

6.66 We take into account a range of issues when considering incentive strength including but not limited to the following:

- the importance that we and stakeholders place on achieving the output;
- the cost associated with delivering the output;
- the consumer benefit associated with delivering this output²¹;
- confidence in the clarity of the output;
- confidence in the accuracy and reliability of the information used to measure performance against the output;
- historical performance of network companies: if poor performance was identified, we may want to consider stronger incentives to encourage changes in behaviour in this area; and

²¹ Sometimes this is a social benefit eg protecting vulnerable consumers, rather than a quantitative benefit.

- external policy drivers: even where a network company had demonstrated relatively good performance, we may consider setting a strong incentive to drive a step change in performance or emphasise the ongoing importance of the area.

6.67 These factors were considered in the round against efficiency incentives, the cost of capital and the ability of the network companies to earn returns.

Calibrating ODI-F incentive rates, caps, and collars across networks

6.68 As a general principle, we seek to appropriately 'size' incentives to the individual network, using a numerical benchmark. In RIIO-2, we used a mix of measures (eg Base Revenue, £m) to calibrate several ODI incentive rates, caps, and collars.

Rewards and Penalties

6.69 As was the case with RIIO-1, we introduced incentives that either included both a financial reward and a penalty, a reward only or a penalty only.

6.70 As a general principle, we applied financial rewards where the overall cost of the incentive did not exceed the value of improvements to consumers, and where performance improvements were not already funded through the baseline.

6.71 We applied financial penalties where we considered that a minimum standard of performance was expected and/or where a financial incentive may support requirements included within licence conditions.

ODI-Rs

6.72 We applied reputational incentives mainly in areas:

- that were of interest to broader stakeholders eg the environment, consumer vulnerability;
- where we were considering setting a financial incentive but where there was insufficient data on network company performance or consumer benefits etc. to support this;
- where we wanted to obtain confidence in metrics being used to measure performance for a specific output, before transitioning to a financial incentive;
- where the level of consumer benefit (or willingness to pay) was difficult to specify; and
- where network companies were incentivised by other organisations eg HSE, government departments to deliver specific outputs.

6.73 In some cases we combined reputational incentives with financial incentives.

Bespokes

- 6.74 For RIIO-2, we gave network companies the opportunity to propose bespoke outputs, in collaboration with their stakeholders, and Customer Engagement Groups (CEGs) and User Groups (UGs). This included proposing:
- bespoke PCDs;
 - bespoke ODIs, reputational and/or financial in nature, including in areas already covered by common sector-wide outputs; and
 - more stringent bespoke targets or incentive rates for common ODIs.
- 6.75 Proposals had to be underpinned by robust analysis (eg cost benefit analysis) that demonstrated value for money for consumers. Network companies provided evidence on the extent to which proposals had been scrutinised by stakeholders (eg through the enhanced engagement process).
- 6.76 Where network companies proposed bespoke ODIs, we assessed these as part of our review of company Business Plans. We considered the following:
- whether there was a specific regional circumstance or customer need that needed to be considered;
 - whether the output reflected a service that customers expected to receive from a network company;
 - whether a network operator was best placed to deliver this output, rather than another organisation;
 - whether the output was already being provided or funded as part of the price control;
 - the cost of delivering the proposed output, the value that consumers will receive, the likelihood of network companies achieving this and by extension (for ODI-Fs) the potential associated reward and/ or penalty; and
 - the extent to which an independent measure of the existing level of service that consumers receive is available, and the degree to which the target level being proposed represents an improvement on this.
- 6.77 Where a company proposed a bespoke output that we thought had wider applicability to the rest of the sector, we introduced this as a common output.
- 6.78 For bespoke financial incentives, we set an upper and lower limit on the maximum reward or penalty that could be earned. This was between 0.25% and 1% of base revenue. The upper value helped to ensure that the focus of network

companies remained on core, common output areas whilst limiting the potential cost to consumers that might come from rewards on performance in new output areas where there is no significant track record. The lower value helped to ensure that only sufficiently material proposals were brought forward.

RIIO-2 Lessons Learned

ODI-Fs

6.79 In our Framework Decision, we noted there was broad recognition from stakeholders that financial incentives are a significant driver in improving company behaviour and benefits for consumers. There was strong support for well-designed incentives that drive positive outcomes for consumers, and set a high benchmark for performance which is then embedded into future controls.

Target setting

6.80 Some stakeholders thought that targets for financial incentives are set too far in advance, historically have not been stretching enough and that they have failed to reflect the likelihood of outperformance.

Strength of incentives

6.81 It was noted that incentive strength is not always linked to consumer value or benefit. This could lead to the cost of meeting certain levels of performance exceeding the benefit to consumers from that improved performance.

Rewards and Penalties

6.82 One stakeholder said that we should consider developing incentive schemes that reward and penalise by comparing performance between network companies.

6.83 We noted that current reporting does not monitor spend associated with specific service improvements - this could lead to potential double-rewarding through totex and incentive payments.

Calibrating ODI-F incentive rates, caps, and collars across networks

6.84 In RIIO-ED2, we moved from calibrating ODI incentive rates, caps, or collars using a mix of measures, to using Return on Regulatory Equity (RoRE) only. This was to help provide a picture of incentive strengths in the round.

ODI-Rs

6.85 Our engagement with stakeholders indicated some support for reputational incentives, with one stakeholder stating that these types of outputs provide

visibility and transparency to specific areas, as well as providing assurance that these areas have senior level visibility and attention.

Bespokes

- 6.86 There was also broad support for bespoke outputs from network companies. However, it was noted that the ratio of proposed bespokes to accepted bespokes was very low (around 27%). Better guidance was recommended to reduce the resource burden required to develop, review and assess proposals from an industry and Ofgem perspective.
- 6.87 One consumer body representative also noted that careful consideration was needed about the acceptance of bespoke outputs, as this could lead to a 'postcode lottery' where consumers experience a different level of service, dependent on their location and network operator.

Our RIIO-3 proposals

ODI-Fs

- 6.88 We propose to continue incentivising service improvements through financial incentives.
- 6.89 We note that coordination between gas and electricity network companies, transmission and distribution network companies and energy networks and other parts of national infrastructure will play a vital role in enabling the energy system transformation needed at low cost.
- 6.90 Whilst financial incentives have traditionally been focussed on performance improvements, we think there is scope for more incentives that encourage network companies to co-ordinate with each other more effectively to provide better outcomes for consumers.
- 6.91 We think that any metrics used to measure company behaviours must be able to robustly demonstrate consumer benefit. We would welcome feedback on behaviours that we should seek to incentivise and common incentives that could be developed that support these objectives.

Target setting

- 6.92 We propose to set stretching targets that deliver value for money for consumers. We will continue using static and dynamic targets as appropriate, when developing financial incentives.

- 6.93 We propose to continue to use a combination of historic network company performance, frontier company performance and performance data from other sectors to set our targets, as appropriate.
- 6.94 In general, we will aim to set common targets to ensure that consumers receive similar service levels regardless of their geographic location. However, we will set bespoke targets where companies have regional circumstances or consumer needs that warrant consideration.
- 6.95 We will continue to use deadbands where appropriate, namely:
- where we do not want companies to be unduly penalised or rewarded for small deviations in performance, but instead want to focus on material deviations from the target; and
 - where there were some factors outside of network companies control and we do not want network companies to be unduly penalised or rewarded for this.

Strength of incentives

- 6.96 We consider that our current framework for considering the strength of incentives (paragraph 6.66) is fit for purpose. We do not propose to make any changes to this.
- 6.97 We will consider incentive strength in the round against efficiency incentives, the cost of capital and the implications this will have in terms of the ability of the network companies to earn returns.

Calibrating ODI-F incentive rates, caps, and collars across networks

- 6.98 For RIIIO-3, we propose to present all ODI-F values as a percentage RoRE, rather than a percentage of base revenue. We think this is preferable for the following reasons:
- RoRE is a measure that is more directly relevant to investors. Returns to investors ultimately provide motivation for strong delivery on incentives;
 - RAV will generally be more stable than revenue, which can be influenced by large pass-through costs due to unusual circumstances (eg large Supplier of Last Resort (SoLR) costs); and
 - potential rewards or penalties will be 'sized' according to the notional gearing of the company and will not be affected by the amount of notional equity the company holds.

Rewards and Penalties

6.99 We propose to continue to apply financial rewards where the overall cost of the incentive does not exceed the value of improvements to consumers, and where performance improvements are not already funded through the baseline.

6.100 Similarly, we propose to apply financial penalties where we consider that a minimum standard of performance is expected and non-delivery leads to consumer detriment; and/or where a financial incentive may support requirements included within licence conditions.

ODI-Rs

6.101 We recognise that reputational incentives do not influence network company decisions as strongly as financial rewards/penalties, however, we think that they can motivate the companies to behave in certain ways where they are designed and used effectively. Therefore, we propose to retain the use of reputational incentives and the framework for applying them (paragraph 6.72) in RIIO-3.

Bespokes

6.102 As a general principle, we want to minimise the number of bespoke that we incorporate into the price control. This is because we want to ensure that:

- consumers can expect a similar level of service regardless of their geographic location;
- ensure that company performance remains comparable across the majority of the price control;
- company focus remains on key areas of high importance to consumers; and
- to ensure that the price control is efficient and manageable.

6.103 However, we recognise that network companies may have unique requirements and circumstances, based on their local geography and the needs of their local customers, that need to be reflected in the price control.

6.104 In these circumstances, we propose to provide network operators with the opportunity to submit bespoke outputs as part of their business plans. We propose to assess these as part of our review of company business plans.

6.105 We note that network companies developed many of their bespoke proposals in collaboration with their CEGs and UGs, however we think that the reason that so many of these were rejected is because:

- network companies were not best placed to deliver the proposed output or service (ie they were already being delivered by other organisations); and
- insufficient evidence was provided to demonstrate value for money for consumers.

6.106 We ask companies to bear these considerations in mind when developing their proposals for RIIO-3, to help ensure that the price control does not become too complex or distracts away from consumers’ priorities.

6.107 We do not expect bespoke submissions from network companies, other than in exceptional circumstances. Where bespoke proposals are submitted, they should be underpinned by robust analysis that demonstrates value for money for consumers. Network companies should provide evidence on the extent to which proposals have been scrutinised by stakeholders. We propose to work with network companies and stakeholders on this as we develop our business plan guidance.

6.108 For bespoke financial incentives, we propose to retain the RIIO-2 lower and upper limit for incentive strength (0.25% - 1%).

OVQ13. Do you agree with our proposed framework for setting financial incentives? Are there any additional considerations that we should take into account?

OVQ14. Do you agree with our approach to setting reputational incentives? Are there any additional considerations that we should take into account?

OVQ15. Do you agree with our proposals for bespoke outputs? Are there any additional considerations that we should take into account?

Output and incentives in RIIO-2

6.109 In RIIO-2, we set out output and incentives that were cross-sector, sector-specific or company-specific. Table 1 below sets out a summary of all the outputs and incentives in RIIO-2 and where further information can be found on our proposed approach to each of these in RIIO-3.

Table 1: List of outputs and incentives from RIIO-2

Output Name	Output Type	Companies Applied to	Further Detail
Cross-Sector			
Business Carbon Footprint	ODI-R	All ETOs, all GDNs	This chapter
Cyber Resilience IT	PCD	All	Overview, Chapter 11

Output Name	Output Type	Companies Applied to	Further Detail
Cyber Resilience OT	PCD	All	Overview, Chapter 11
Data Best Practice	LO	All	Overview, Chapter 13
Digitalisation Strategy and Action Plan	LO	All	Overview, Chapter 13
Environmental Action Plan/Annual Environmental Report	LO, ODI-R	All	This chapter
Environmental Scorecard	ODI-F	All ETOs, National Gas	This chapter
NARM	LO, PCD	All	This chapter
Non-Operational IT Capex	PCD	All	This chapter
Physical Security	PCD	All	This chapter
Sector-Specific			
Accelerated Strategic Transmission Investment	PCD, ODI-F	All ETOs	ET Annex, Chapter 2
Energy Not Supplied	ODI-F	All ETOs	ET Annex, Chapter 4
Insulation and Interruption Gas Emissions	ODI-F	All ETOs	ET Annex, Chapter 2
Network Access Policy	LO	All ETOs	ET Annex, Chapter 3
New Infrastructure Stakeholder Engagement Survey	ODI-R	All ETOs	ET Annex, Chapter 4
Pre-Construction Funding	PCD	All ETOs	ET Annex, Chapter 2
Quality of Connections Satisfaction Survey	ODI-F	All ETOs	ET Annex, Chapter 4
SO-TO Optimisation	ODI-F	All ETOs	ET Annex, Chapter 4
Timely Connections	ODI-F	All ETOs	ET Annex, Chapter 4
Wider Works	PCD	All ETOs	ET Annex, Chapter 5
Capital Projects	PCD	All GDNs	GD Annex, Chapter 3
Commercial Fleet	PCD	All GDNs	GD Annex, Chapter 2
Complaints Metric	ODI-F	All GDNs	GD Annex, Chapter 4
Consumer Vulnerability Minimum Standards	LO	All GDNs	GD Annex, Chapter 4

Output Name	Output Type	Companies Applied to	Further Detail
Consumer Vulnerability Reputational Incentive	ODI-R	All GDNs	GD Annex, Chapter 4
Customer Satisfaction Survey	ODI-F	All GDNs	GD Annex, Chapter 4
Emergency Response	LO	All GDNs	GD Annex, Chapter 3
Fuel Poor Network Extension Scheme	ODI-R	All GDNs	GD Annex, Chapter 4
Guaranteed Standards of Performance	LO	All GDNs	GD Annex, Chapter 4
Shrinkage and Environmental Emissions	ODI-R	All GDNs	GD Annex, Chapter 2
Shrinkage Management	ODI-F	All GDNs	GD Annex, Chapter 2
Tier 1 Mains Decommissioned	PCD	All GDNs	GD Annex, Chapter 3
Tier 1 Services Repex	PCD	All GDNs	GD Annex, Chapter 3
Company-Specific ET			
Bay Assets	PCD	NGET	ET Annex, Chapter 5
Bengeworth Road GSP	PCD	NGET	ET Annex, Chapter 5
Generation related infrastructure	PCD	NGET	ET Annex, Chapter 5
Instrument Transformer	PCD	NGET	ET Annex, Chapter 5
Operational transport carbon reduction	PCD	NGET	ET Annex, Chapter 2
Overhead Line Conductor	PCD	NGET	ET Annex, Chapter 5
Protection and Control	PCD	NGET	ET Annex, Chapter 5
SF6 Asset Intervention	PCD	NGET	ET Annex, Chapter 2
Resilience and Operability	PCD	SHETP, SPT	ET Annex, Chapter 5
Shared Schemes	PCD	SHETP, SPT	ET Annex, Chapter 5
Company-Specific GT			
Annual Network Capability Assessment Report	LO	National Gas	GT Annex, Chapter 3
Asset Health - Non Lead Assets	PCD	National Gas	GT Annex, Chapter 3
Bacton Terminal Site Redevelopment	PCD	National Gas	GT Annex, Chapter 3

Output Name	Output Type	Companies Applied to	Further Detail
Compressor Emissions	PCD	National Gas	GT Annex, Chapter 2
Constraint Management	ODI-F	National Gas	GT Annex, Chapter 4
Customer Satisfaction Survey	ODI-F	National Gas	GT Annex, Chapter 4
Greenhouse Gas Emissions	ODI-F	National Gas	GT Annex, Chapter 2
Kings Lynn Subsidence	PCD	National Gas	GT Annex, Chapter 3
Maintenance	ODI-F	National Gas	GT Annex, Chapter 4
NTS Shrinkage	ODI-R	National Gas	GT Annex, Chapter 2
Quality of Demand Forecasting	ODI-F	National Gas	GT Annex, Chapter 4
Redundant Assets	PCD	National Gas	GT Annex, Chapter 2
Residual Balancing	ODI-F	National Gas	GT Annex, Chapter 4
Stakeholder Satisfaction Survey	ODI-R	National Gas	GT Annex, Chapter 4
Company-Specific GD			
Collaborative Streetworks	ODI-F	Cadent, SGN (Southern Only)	GD Annex, Chapter 4
High Rise Building Plans	ODI-R	Cadent	GD Annex, Chapter 4
HyNet Front End Engineering Design	PCD	Cadent	GD Annex, Chapter 2
London Medium Pressure	PCD	Cadent	GD Annex, Chapter 3
Personalising Welfare Facilities	PCD	Cadent	GD Annex, Chapter 4
Unplanned Interruption Mean Duration	ODI-F	Cadent	GD Annex, Chapter 4
Gas Holder Demolition Works	PCD	NGN, WWU	GD Annex, Chapter 3
Job Completion Lead Time	ODI-R	NGN	GD Annex, Chapter 3
Unplanned Interruptions Mean Duration	ODI-F	NGN, SGN, WWU	GD Annex, Chapter 4
Biomethane Improved Access Rollout	PCD	SGN	GD Annex, Chapter 2
Gas Escape Reduction	PCD	SGN	GD Annex, Chapter 2

Output Name	Output Type	Companies Applied to	Further Detail
Intermediate Pressure Reconfigurations	PCD	SGN (Scotland only)	GD Annex, Chapter 2
Remote Pressure Management	PCD	SGN (Southern only)	GD Annex, Chapter 2

Cross sectoral outputs

6.110 This section of this chapter sets out proposals on cross-sectoral outputs and incentives for the environment and resilience.

Environment

6.111 The delivery of an environmentally sustainable network will be a significant part of achieving the UK’s net zero vision. Ofgem is committed to providing support to reduce the harmful impact that the electricity transmission and gas networks and related business activities can have on the environment.

6.112 Our RIIO-2 environmental framework focused the network companies on being more transparent on the environmental impacts of their networks and accountable for the mitigation actions they are taking to reduce these impacts. The core environmental outputs and incentives in RIIO-2 were:

- Environmental Action Plan (EAP) and Annual Environmental Report (AER) (ET, GD and GT): ensuring that the network companies take responsibility for the environmental impacts arising from their networks and are more transparent in what they are doing to mitigate these;
- Business Carbon Footprint (BCF) ODI-R (ET and GD): setting a common reputational incentive for TOs and GDNs on their respective BCF reduction targets; and
- Environmental Scorecard (NGET and NGT only): incentivising NGET and NGT to outperform selected RIIO-2 targets in their EAPs.

6.113 In this chapter we set out our proposed approach for the network companies to safeguard the environment in RIIO-3, building on an assessment of the RIIO-2 mechanisms. Our aims for network companies in RIIO-3 on environmental performance are:

- To mitigate environmental impacts that arise from network activities and increase transparency on network company actions and plans to decarbonise in line with net zero;
- to ensure that network companies consider biodiversity and the climate crisis in new construction and mitigate environmental impacts prior to construction; and
- improved information sharing and cooperation between network companies on environmental initiatives.

6.114 The EAP, AER, BCF and Environmental Scorecard mechanisms all apply to at least two of the sectors, so we have described our views on those mechanisms in this chapter. Any sector specific environmental outputs are described in the sector specific annexes.

Environmental Action Plan (EAP) and Annual Environment Report (AER)

RIIO-2 background

6.115 In RIIO-2, we introduced a business plan requirement for the network companies to develop an EAP. The purpose of the EAP was to ensure that the network companies identify the environmental impacts arising from their networks and are more transparent in what they are doing to mitigate the impacts. For RIIO-2, we set out minimum requirements for the companies to adopt in their EAP commitments. We considered that setting minimum requirements would support cross-sector consistency and greater environmental ambition from the companies.

6.116 We also introduced a licence obligation for the network companies to publish an AER. The purpose of the AER is to monitor the environmental impacts of company activities and to track their progress in achieving their RIIO-2 EAP commitments.

6.117 We provided guidance to the network companies on the form of the AER to ensure that the information is transparent and presented in a structured and comparable way.²² The areas of focus are:

- contribution to energy system decarbonisation;
- climate change impacts;
- resource use and waste;

²² [RIIO-2 Environmental Reporting Guidance | Ofgem](#)

- sustainable procurement; and
- the local environment.

6.118 We monitor the network companies progress against their EAP commitments through annual regulatory reporting and the AER.

Regulatory design

6.119 Each network company submitted an EAP as part of their RIIO-2 business plan submission. In their EAPs, network companies identified value for money initiatives and activities to reduce the environmental impacts of their networks. We set funding allowances for the efficient costs of delivering the commitments and set PCDs for specific deliverables where this was appropriate. Network companies must report annually on impacts and activities in the AER. This includes key performance indicators as well as efforts towards a longer term net zero plan to 2050. Network companies must publish their AER on their websites each year.

Network company performance

6.120 Network companies have generally made good progress over the first two years of RIIO-2 in delivering the commitments set out in their RIIO-2 EAPs.

EAP and AER considerations for RIIO-3

6.121 We propose that the network companies submit an EAP as part of their business plans for RIIO-3. We propose to review the minimum requirements for the EAP and will look to add or strengthen these through the Business Plan Guidance where we consider there is a compelling case for the network companies to move faster on addressing their impact on the environment.

6.122 We also propose to retain the LO in RIIO-3 for the network companies to publish an AER on the actions taken to reduce and manage environmental impacts.

6.123 We propose to set PCDs for environmental initiatives that the network companies put forward in their EAPs where these are sufficiently material in terms of environmental benefit and cost. We consider that the combination of PCDs and monitoring smaller value actions in their AER, which is a public facing report, is an effective safeguard against the risks of the network companies not delivering their EAP commitments.

6.124 We are also considering the introduction of a common reporting format to minimise discrepancies in comparing reports across sectors. We believe that implementing a common format may increase transparency across the sector.

The report structure we propose would consist of two key documents: an AER Commentary and an AER Key Performance Indicator (KPI) table. The Commentary would provide the narrative around how the company has performed against their environmental obligations over the previous year, whereas the KPI table would evidence the Commentary and present numerical evidence of performance.

- 6.125 We also propose to strengthen the AER reporting standards to ensure that network companies report consistently on elements such as sustainable resource use and waste, supply chain management, embodied carbon, biodiversity, electricity transmission losses (ET only), shrinkage (GD and GT), and biomethane and other low gas connections (GD only).
- 6.126 We consider that the most appropriate type of incentive to achieve the above objectives is an ODI-R. A reputational ODI developed and published as part of the AERs will drive network companies to consistently improve their environmental performance throughout RIIO-3 and hold them accountable for their EAP commitments and achievements on an annual basis. Public reporting will increase the transparency of network companies' environmental impact and enable comparability of performance between them.

OVQ16. Do you agree with our proposal to retain the EAPs and AERs in RIIO-3? Please provide reasonings for your position.

OVQ17. What are your views on the new proposed AER format with Commentary and KPIs?

Business Carbon Footprint (BCF) ODI-R

RIIO-2 background

- 6.127 In RIIO-2, we made it a business plan requirement for the network companies to set a target to reduce their business level greenhouse gas emissions, or BCF.
- 6.128 A company's BCF comprises scope 1, 2 and 3 emissions. Scope 1 covers direct emissions from owned or controlled sources. Scope 2 covers indirect emissions from the generation of purchased electricity, steam, heating, and cooling consumed by the reporting company. Scope 3 includes all other indirect emissions that occur in a company's value chain eg from the purchase of goods and services, distribution and transport.²³

²³ For further information on the please see the [GHG Protocol Corporate Accounting and Reporting Standard](#).

Incentive design

6.129 In RIIO-2, all three TOs and four GDNs adopted emission reduction targets that were independently assessed and verified by the Science Based Target Initiative.²⁴ This approach provides assurance that the emissions targets are in line with climate science to limit climate warming to 1.5 degrees Celsius.²⁵

6.130 The incentive is reputational only.

TO performance

6.131 Each network company must report on scopes 1 and 2 of its BCF in their AER. Table 2 below shows each network companies' scope 1 and 2 BCF (excluding losses) for the first two years of RIIO-2 and the overall change compared to the 2018/19 baseline. For comparison purposes, we have also included an estimate of the level of emissions in 2025/26 that is consistent with the pathway to each TO's BCF target.

Table 2: Scope 1 and 2 BCF (excluding losses and shrinkage)²⁶

Tonnes of CO2e	2018/19 baseline	2021/22	2022/23	Change vs baseline	2025/26 pathway estimate
Cadent	34,878	31,623	30,004	-14%	35,000
NGN	6,737	4,943	4,527	-33%	3,612
SGN	23,255*	21,367	19,844	-15%	17,395
WWU	11,296*	11,591	13,250	17%	12,014*
SPT	21,616	14,425	9,340	-57%	8,392
SHET	9,554	8,487	9,934	4%	6,402
NGET	298,918	250,173	241,723	-19%	197,286
Total	406,254	342,609	328,622	-17%	268,087

²⁴ The SBTi is a partnership between CDP, the United Nations Global Compact, World Resources Institute (WRI) and the World Wide Fund for Nature (WWF). It assists companies to set science-based emission reduction targets: <https://sciencebasedtargets.org/about-us>

²⁵ The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.

²⁶ Data are taken from Scope 1 and 2 emissions table in company AERs, except where indicated with a '*', where data has been provided by the company. Figures for 2025/26 pathway estimate have been calculated by interpolation from company baseline levels and their targets for scope 1 and scope 2 emissions.

BCF considerations for RIIO-3

6.132 We propose to retain the reputational incentive on TOs and GDNs for reducing their BCF.

6.133 We consider that the companies benefit significantly from adopting a robust reduction target that means a reputational incentive is a strong driver for action. These benefits include strengthened brand reputation and credibility, increased investor confidence, future proofing and regulatory resilience, and bottom-line savings.

OVQ18. Do you agree with our minded-to position of retaining the reputational incentive on TOs and GDNs for reducing their BCF?

OVQ19. Are there any other suggestions you would like to make regarding reporting standards?

Environmental Scorecard ODI-F

RIIO-2 background

6.134 The Environmental Scorecard was introduced in RIIO-2 in order to incentivise the electricity and gas TOs to outperform selected RIIO-2 targets in their EAPs. Only NGET and National Gas have active Environmental Scorecard ODI-F. A licence provision is included in SHET and SPT's licences for the Environmental Scorecard but they did not develop the parameters needed (eg baseline targets and performance thresholds) in each of the impact areas to operate the ODI. The impact areas covered in the Environmental Scorecard are:

- business mileage emissions;
- office and operational waste recycling;
- office waste reduction;
- office water use reduction;
- environmental value of non-operational land; and
- biodiversity net gain on new network projects.

Incentive design

6.135 The Environmental Scorecard ODI is a symmetrical financial incentive which subjects companies to a reward/penalty if actual performance either exceeds or underperforms pre-defined performance thresholds for each impact area. For example, if the actual percentage of biodiversity net gain on new projects is above or below the reward or penalty threshold, respectively 15% and 5%, the

TO will receive a reward or penalty. There is no reward or penalty if the actual performance is in the dead-band - the interval between the first penalty threshold and the first reward threshold. Incentive rates are based on the economic value of the change in each impact area calculated at the threshold.

Environmental Scorecard considerations for RIIO-3

- 6.136 While performance has been positive, we consider that aspects of the Environmental Scorecard such as biodiversity net gain should be applied to all network companies through the AER.
- 6.137 For RIIO-3 we propose to develop incentives for areas of the AER that are auditable and measurable and where there is sufficient data to enable strong targets to be set. Primarily we expect these to be reputational through the AER, as described in the sections above, but we're open to suggestions on financial incentives.
- 6.138 We believe that obligations under the AER are an appropriate driver for activities to reduce the environmental impacts arising from networks as well as to achieve broader decarbonisation targets. The AER will encourage transparent reporting of activities to hold TOs accountable while supporting improved data quality, information sharing and comparability. Further details of the AER design will be developed through working groups and taking into considerations responses to this consultation.

OVQ20. Do you agree with our minded-to position to withdraw the Environmental Scorecard and incentivise improvements in environmental impacts through the Annual Environmental Report (AER)? Please explain your reasoning.

OVQ21. Do you consider that there are other areas which require financial incentives which cannot be captured by the AER? Please explain your reasoning.

Network Asset Risk Metric (NARM)

Background

- 6.139 If a network company does not appropriately manage their assets, the risk of those assets failing will generally increase over time. To keep network asset risk, ie the consequence of asset failure and the likelihood of a failure occurring, within reasonable bounds, network companies are funded to carry out asset management activities such as replacement and refurbishment.
- 6.140 The consequences of network asset risk degradation may only become apparent over much longer timeframes through interruptions to service, detriment to

safety or environmental impacts. The impact of any shortfall in asset management activities may therefore not be directly observable during a price control.

6.141 This is therefore an important part of the price control not only because asset replacement and refurbishment is a significant area of expenditure but because we use network asset risk as the output to hold companies accountable for their investment decisions, and to ensure they are effectively managing their assets.

NARM methodology

6.142 During RIIO-1, network companies across all sectors developed a Network Output Measures (NOMs) methodology. This methodology set out the approach to utilise asset information (such as condition data) collected through inspections and other asset management activities, alongside information on the likely consequence of asset failures, to calculate a network risk measure. This risk measure, which is a monetised risk measure, was determined through the multiplication of the probability of asset failure by the monetised value of the consequences of the failure (eg the value of interruption to supply, or cost of damage to the environment, etc.).

6.143 In RIIO-2, we introduced NARM as a successor to NOMs, building on the significant progress made in RIIO-1 and evolving the monetised risk measure to a long-term monetised risk measure for the purpose of setting outputs and allowances associated with certain asset management activities.

6.144 All electricity transmission, electricity distribution and gas transmission companies have their NARM outputs defined using long-term monetised risk measures. However, we retained a single-year snapshot measure (similar to the RIIO-1 measure) for defining the gas distribution companies' outputs. Please refer to our RIIO-2 Draft Determination and Final Determinations for the reasoning behind these decisions.^{27,28} During RIIO-2, the gas distribution network companies have however been developing their methodology to also adopt the long-term monetised risk measure for RIIO-3.

6.145 Within the RIIO NARM Handbook²⁹ we set out the methodology for calculating relevant funding adjustments and penalties under the NARM Funding Adjustment

²⁷ [RIIO-2 Draft Determinations for Transmission, Gas Distribution and Electricity System Operator | Ofgem](#)

²⁸

[RIIO-2 Final Determinations for Transmission and Gas Distribution network companies and the Electricity System Operator | Ofgem](#)

²⁹ [Network Asset Risk Metric Handbook \(ofgem.gov.uk\)](#)

and Penalty Mechanism for electricity transmission, gas transmission, and gas distribution network companies.³⁰ We want to work with network companies on this for RIIO-3 to review whether these arrangements remain fit for purpose.

6.146 All network companies are required under Special Licence Condition (SpC) 9.2 of their respective licences to have a NARM methodology in place. Ahead of RIIO-2, we worked closely with network companies on the development and subsequent review of these NARM methodologies to ensure they were reflective and consistent with the way in which network companies make investment decisions and manage their assets. Network companies are required to keep their methodologies under review to ensure they continue to facilitate the achievement of the NARM objectives. For RIIO-3 we will work with all network companies to review what changes are required to the NARM methodologies, but our view is that this will likely be limited to evolutionary updates as opposed to any material changes at this stage.

6.147 Due to the different nature of network assets across the sectors and the way in which network companies operate, each sector has an individual NARM methodology, with company-specific elements where appropriate. For example, the gas distribution sector has a NARM methodology that is largely common to the gas distribution networks. Whereas the electricity transmission operators (ETOs) have a common NARM methodology and company-specific Network Asset Risk Annexes. In RIIO-ED2 we have had demonstrable success in improving commonality and consistency of the implementation of the NARM methodology across all electricity distribution network companies. We want to build and apply the same principles and approach for the gas and electricity transmission sectors.

6.148 We maintain an ambition to also expand the coverage of the NARM methodology, and where appropriate increase the proportion of expenditure linked to outputs. We recognise that expansion can only be delivered through a long-term process of continuous review and improvement. However, we are keen to understand what can be achieved between now and the start of RIIO-3, and for future price controls.

Incentives associated with NARM

6.149 For RIIO-3 we want to ensure that network companies continue to be incentivised to deliver their NARM outputs efficiently. This includes clawing back funding and issuing penalties for unjustified under-delivery, as well as routes to additional

³⁰ [Consultation on issuing the Network Asset Risk Workbooks and Network Asset Risk Metric Handbook | Ofgem](#)

funding for justified over-delivery. We have not identified any reasons why the current regime does not do this. As such we propose to maintain the RIIO-2 NARM incentive regime.

Use of NARM in justifying investment decisions

6.150 For RIIO-3, it is our view that NARM should provide a useful tool, as part of a wider toolkit, for assessing and justifying investment decisions. While we recognise the important role that NARM can play in justifying network companies' asset replacement and refurbishment expenditure, we believe that there may be a need for additional justification through CBAs and EJPs to provide the narrative for and explain the network companies' investment decision-making process.

6.151 We also recognise the important role that our cost assessment has in setting the efficient level of asset replacement and refurbishment expenditure for companies to deliver their outputs.

OVQ22. Do you have any views on our proposals for the NARM framework?

Climate Resilience

Background

6.152 As global temperatures increase, severe weather events such as high winds, lightning, flooding, wildfires and droughts are expected to become more frequent and extreme. Additionally longer-term changes such as sea levels rising, drier and hotter summers, warmer and wetter winters and drought cycles will become more apparent. At the same time, the transition to net zero is increasing the energy system's vulnerability to these risks.

6.153 In order to maintain reliability and resilience across their networks, network companies must proactively consider the impacts of severe weather events and longer-term climate change on their networks. They must also embed adaptation planning and implementation into their investment decisions to manage the risks this may bring. The urgency to consider climate resilience in investment decisions now is heightened given the scale of investment required to transition to net zero and the need to avoid locking in future costly impacts or expensive retrofitting.

Our RIIO-2 approach

6.154 For RIIO-2 we provided network companies with allowances to deal with two key climate related risks. This included allowances to:

- protect key network infrastructure from flooding; and

- manage vegetation surrounding network assets to improve network performance under abnormal weather conditions.

6.155 For RIIO-ED2, we went further than this. In addition to providing these allowances, we required DNOs to establish a 'climate resilience' working group that was tasked with helping them to develop climate resilience strategies that would inform their investment proposals for RIIO-3 and beyond. As part of this process, DNOs assessed the vulnerability of their networks to wider risks such as increased temperatures, prolonged rainfall, wildfires, drought, lightning, sea level rises and prolonged rain.

6.156 These requirements did not apply to the RIIO-2 price controls for transmission and GD. However, we think it's important for all network companies to consider the impacts of longer-term climate change on their networks, and continue planning for and managing the risks this may bring.

Our proposal for RIIO-3

6.157 We propose that network companies should apply the following principles³¹ to fully embed climate resilience into their energy network and system investments:

- climate resilience decisions need to be based on forward-looking data and information. This is especially important as climate change is expected to bring unprecedented extreme weather and variability which means information based on the past is not a good indicator for the future;
- high impact, low likelihood extreme events (based on latest understanding of climate science) need to be considered in light of the more frequent and severe extreme weather expected;
- the costs and benefits of adaptation actions and their impact on resilience (ie avoided costs) need to be correctly valued. This includes understanding the impact actions will have on improving levels of resilience over the lifetime of the asset and capturing indirect (eg impact on other sectors) as well as direct avoided costs; and
- investment decisions need to be fit for purpose for the decarbonised energy system. In particular, the increased vulnerability of the system to climate risks, whilst we transition to net zero need to be considered.

³¹ These have been informed by expert recommendations from multiple independent government advisors (including the CCC, NIC and JCNSS) and wider research.

6.158 If we decide that these principles should be implemented, we realise that it won't be possible to embed them straight away, and that some will need to be developed in slower time, outside the price control process. However, action on climate resilience cannot wait and RIIO-3 offers an important opportunity to make vital and significant progress towards embedding climate resilience.

6.159 We also propose that network companies should develop long-term resilience strategies which set out the approach they will utilise to achieve climate resilience. This should include:

- setting out a baseline and target level of climate resilience (based on 'forward-looking' metrics³²);
- the measures that network companies will take to achieve their target level. This should include short-term and long-term measures as well as pathways for decision making³³;
- clarity on how investment under the price control period relates to the longer-term strategy. This could include specific investments being made in resilient, climate-proof networks and systems; and
- the monitoring, reporting or evaluation processes in place to measure progress.

6.160 We also propose that sectors should establish a 'climate resilience' working group which:

- considers how to implement the principles we set out in paragraph 6.157;
- develops common, forward-looking climate resilience metrics that network companies can use to measure the resilience level of their networks and the impact of any adaptation measures implemented;
- considers proactive and cost-effective mitigation measures that can be implemented to deliver climate resilience; and
- shares best practice on developing long term resilience strategies and solutions to implementing climate adaptation solutions.

6.161 We propose to work with network companies between SSMC and SSMD to further develop the scope of the climate resilience strategies, forward looking climate

³² A 'forward-looking' metric contains information about future climate change scenarios and high impact low probability severe weather events.

³³ 'Pathways' in relation to adaptation is an approach designed to schedule adaptation decision-making: it identifies the decisions that need to be taken now and those that may be taken in future. The approach supports strategic, flexible and structured decision-making.

resilience metrics and the terms of reference of the climate resilience working groups.

6.162 We also recognise the importance of incorporating consideration of high impact, low probability events into investment decisions relating to climate resilience. At the same time we recognise the uncertainty regarding setting resilience standards which is why we have proposed a resilience re-opener. For further information on this, please see paragraphs 8.42-8.54.

Rationale for our proposal

6.163 Network infrastructure often lasts for many decades but events such as Storm Arwen indicate that existing assets may not be sufficiently resilient to existing events, let alone the more severe and frequent weather events that a changing climate will bring or the increasing vulnerability of the energy sector that transition to net zero will bring.

6.164 Independent and expert advisors (such as the Climate Change Committee, National Infrastructure Commission and Joint Committee on National Security Strategy) agree that current action is not enough, and more proactive action is urgently needed to ensure climate resilience is embedded into investment decisions. This urgency is further heightened given the scale of investment required to achieve net zero and the need to factor climate resilience into decision making to avoid locking in costly impacts or expensive remediation action afterwards.

6.165 Therefore, it is vital to build on our RIIO-ED2 approach to climate resilience to ensure that all sectors are proactively managing the growing risks to their networks from climate change.

6.166 To embed climate resilience into investment decisions, we propose that network companies implement the principles set out in paragraph 6.157. We think that this approach will minimise the risk of significant disruptions and ensure that infrastructure investments are cost-effective over their lifetime.

6.167 The development of a climate resilience strategy will help to encourage long-term thinking on climate resilience. Similarly, we think that the introduction of forward-looking metrics will help network companies to demonstrate how resilience measures are delivering value for money for consumers and link their RIIO-3 investment plans to their longer-term strategy.

6.168 We think that the establishment of sector working groups will enable network companies to work together to develop forward looking climate resilience metrics,

share best practice and expertise, which in turn will result in consistent, better-quality strategies which better make the links between investment decisions within the price control period and longer-term strategies. This group could also collaborate on identifying ways to better embed climate resilience including making progress on the identified principles both within and beyond RIIO-3.

- OVQ23. Do you have any views on our proposed long-term approach to embedding climate resilience, including the principles for embedding climate resilience?
- OVQ24. Are there any early learnings we should be aware of/incorporate to make progress on this in RIIO-3 or beyond?
- OVQ25. Do you agree with our suggested approach for embedding climate resilience into RIIO3, namely: introducing resilience strategies; developing forward-looking resilience metrics; and introducing climate resilience working groups?

Resilience Metric

Background

- 6.169 Network companies carry out a range of activities to make sure their organisations, infrastructure and systems are resilient against a variety of risks and threats.
- 6.170 In RIIO-ED2, we said that a 'resilience' metric could help track and understand the actions taken by network companies in delivering improved resilience across the price control.
- 6.171 We said that we would work with DNOs and other interested stakeholders to develop a wider resilience metric ready for implementation in RIIO-ED3. We proposed that it could cover activities such as flood resilience and tree cutting.
- 6.172 More recently, the National Infrastructure Commission (NIC) published its second National Infrastructure Assessment in October. This set out a number of recommendations to be implemented by 2025, including the setting of outcome-based resilience standards.

Our proposal for RIIO-3

- 6.173 We think that the resilience metric that we are developing for DNOs should be widened to include GD, GT and ET companies.
- 6.174 We propose that we should align the development of the resilience metric with the development of resilience standards recommended by the NIC. This could help measure compliance with any future standards. We note that the development of resilience standards will likely take place over RIIO-2 and into the

early part of RIIO-3. We will work with network companies over this period to develop this metric.

6.175 We also think that the climate resilience metrics that we propose should be developed for RIIO-3 (see paragraph 6.157 for more information) could also be linked to/feed into the wider resilience metric that we are proposing in this section, when ready.

Rationale for our proposals

6.176 We believe that it is important to work towards developing a robust resilience metric that captures the wide range of resilience activities that network companies undertake.

6.177 We think it's important to align the development of the resilience standards and metric to ensure that we can monitor network company progress and where possible, performance in this area.

6.178 We recognise that the development of resilience standards will not align with our RIIO-3 timetable, therefore we have proposed to implement the resilience metric in the next price control.

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

Workforce Resilience

Background

6.179 A resilient workforce is essential to a network company's ability to deliver the services that its customers expect over the longer term. Companies should plan to deliver a modern, diverse, high quality, and well-trained workforce fit for the future. Without the technically skilled people and processes in place to manage and maintain network assets, the expected standards of service would deteriorate. This could lead to poor standards in customer service and networks becoming less reliable and/or more costly in the future.

6.180 Network companies need to ensure their staff are resilient and properly equipped to carry out their work, which includes receiving sufficient training and support. We understand the challenges of attracting, developing and holding on to a sustainable workforce and therefore consider it appropriate to align our approach to workforce resilience across the distribution and transmission sectors.

RIIO-2 approach

- 6.181 Ahead of RIIO-2 we consulted with stakeholders and engaged with industry bodies such as Prospect and Energy and Utility Skills. We proposed the introduction of arrangements to ensure network companies were appropriately managing the risks associated with workforce resilience. Largely, respondents agreed that the responsibility for maintaining a safe and resilient network sits with network companies, and this should be addressed as part of their business plans.
- 6.182 We set no specific output measures or incentives for workforce resilience in RIIO-2. We recognized that setting formal performance targets and reporting requirements could constrain companies in their efforts to deliver the most effective resourcing strategies that meet their specific needs. We believe network companies should have the flexibility to take the steps that are necessary and appropriate for their situation and their workforce.
- 6.183 In RIIO-2 we decided not to include any additional funding for workforce resilience. Workforce resilience costs were funded as part of totex to incentivise network companies to continue to renew their workforce. We expected network companies to submit robust workforce resilience strategies as part of their Business Plans to demonstrate the steps that they will take to meet the workforce resilience needs that are specific to their circumstances.

Our proposal for RIIO-3

- 6.184 As set out in the Framework Decision we recognize the increasing importance of network companies to deliver a modern, diverse, high quality, well-trained workforce fit for the future. We think there could be scope to increase transparency of reporting, particularly around the steps network companies take to improve their workforce resilience.
- 6.185 We consider that it would not be appropriate to set formal performance targets and reporting requirements in RIIO-3 for the same reasons as set out in RIIO-2. However, ahead of RIIO-3, we think there could be value in network companies working with relevant industry bodies to establish a consistent format for public reporting on an agreed set of key metrics. We propose to work with network companies through the relevant working groups to explore the benefit and feasibility of delivering this.

OVQ27. Do you agree with our proposals on workforce resilience?

7. Truth Telling and Efficiency Incentives

Introduction

- 7.1 In setting a price control, regulators require companies to submit information that otherwise they cannot directly observe – eg cost forecasts and output delivery plans. To overcome this information asymmetry, regulators use truth telling incentives to try to overcome information asymmetry and encourage companies to submit ambitious cost forecasts and output delivery plans, supported by high-quality information.
- 7.2 In addition to information asymmetry incentives, regulators use efficiency incentives to encourage companies to deliver their outputs efficiently and discourage overspending after the price control has been set.
- 7.3 In this chapter, we set out our considerations and proposals for the use of these incentives in RIIO-3. These build on feedback and lessons learned from RIIO-2.

Our RIIO-2 approach on information asymmetry incentives

Truth telling incentive

- 7.4 For RIIO-2, Ofgem introduced the Business Plan Incentive (BPI) as an information asymmetry incentive. The BPI was split into four stages:
- In Stage 1, we reviewed Business Plans to ensure that they included sufficiently complete and high-quality information, and imposed an upfront penalty of 0.5% of totex for failing to meet these minimum requirements.
 - In Stage 2, we rewarded companies for proposing consumer value propositions (CVPs), ie activities that went beyond business as usual. The upfront reward was in proportion to the additional consumer value demonstrated in the CVP.
 - In Stage 3, we reviewed forecasts of lower-confidence costs – ie those where, due to the absence of an independent benchmark, we were more reliant on company information in setting allowances. Costs deemed to be poorly justified were removed from allowances and subject to a 10% upfront penalty.
 - In Stage 4, we reviewed forecasts for higher-confidence costs. Companies that submitted forecasts lower than the benchmark that we would otherwise have used to set their allowance, received an upfront reward. This was calculated using the confidence-dependent incentive rate (CDIR) - ie a

blended incentive rate calculated as the weighted average of a 50% incentive rate on higher-confidence costs, and 15% on lower-confidence costs.

- 7.5 These four stages resulted in a net penalty or reward. A total cap of $\pm 2\%$ of allowed totex applied to the net reward or penalty available under the incentive. A summary of the penalties and rewards is presented in Table 3 below.

Table 3: RIIO-2 BPI Penalties/Rewards

Network Company	BPI Penalty/Reward (£m)	as % of totex
NGET	-64.1	-1.19%
SPT	5.0	0.41%
SHET	21.8	1.01%
Cadent	0.6	0.01%
NGN	2.1	0.18%
SGN	-	-
WWU	-	-
NGT	-21.7	1.08%

Efficiency incentive

- 7.6 In RIIO-2, in period efficiency was incentivised with the Totex Incentive Mechanism (TIM). Under the TIM, a company is allowed to retain a share of any underspending of its cost allowance, and bears a share of any overspending. The TIM also works as a risk-sharing mechanism, as the company shares risks and benefits of under/ overperformance with consumers. We used the CDIR from the BPI to set the TIM sharing factor. A breakdown of the sharing factor for each company for RIIO-2 is presented in Table 4 below.

Table 4: RIIO-2 TIM Sharing Factors

Network Company	Sharing Factor
NGET	33%
SPT	49%
SHET	36%
Cadent	50%
NGN	49%
SGN	50%
WWU	50%
NGT	39%

RIIO-2 lessons learned

Truth telling incentive

- 7.7 The BPI received mixed feedback from stakeholders during engagement leading up to the Framework Decision. We heard that overall the BPI incentivised ambitious and well justified business plans. However, subjectivity, complexity, and opaqueness were issues that needed to be addressed.
- 7.8 The production and assessment of CVPs in Stage 2 was considered difficult, and some stakeholders believed they added little value. This was reflected in the low number of CVPs which were rewarded.³⁴ A network company said if the CVPs were to continue the assessment methodology needed to be reviewed. A consumer body expressed concern that CVPs created a postcode lottery and Ofgem did not seek to apply the best practice revealed through Stage 2 across sectors.
- 7.9 A network company said that sharpening the incentives of the BPI may help it become more effective, whilst another network company suggested companies may naturally inflate costs if penalties were weak and sharpening the penalties in particular was noted as important.
- 7.10 During our working groups several network companies raised concerns about how potential high cost volatility in RIIO-3 would impact the cost assessment process and thus the impact on any incentives.

³⁴ Only 3% of CVPs proposed in transmission and gas distribution were rewarded. This grew to 13% in ED2.

7.11 We think that overall the BPI provided positive value to consumers and incentivised companies to provide higher quality and more ambitious business plans than they otherwise might have. However, based on feedback and lessons learned, if the incentive was to be retained, then we recognise that specific areas need to be modified and the overall burden on resources needs to be reduced.

Efficiency incentive

7.12 Feedback during our engagement leading up to the Framework Decision reflected that the TIM was an effective incentive to provide cost efficiencies and innovative solutions.

7.13 Stakeholders provided differing view on the size of the incentive. A network company said that the incentive should be sharpened, both on reward and penalty. On the other hand, a consumer body considered that the rate could be lower and still provide a powerful incentive.

7.14 During our working groups, stakeholders commented that we should provide more transparency on the link between the BPI and the TIM, if it was to be retained. If more guidance is not provided, then some network companies argued that it could create perverse incentives and limit the submission of ambitious proposals. A network company also stated that the BPI and TIM should not retain the same link as present in RIIO-2, while another network company suggested that there could be value in having different sharing factors assigned to different cost categories.

Our RIIO-3 proposals

7.15 We have considered feedback and lessons learned from the implementation of the truth telling and efficiency incentives in RIIO-2, and assessed the approach used by Ofwat in PR24. Through this exercise, we have identified three proposed key objectives that we consider a truth telling incentive should support:

- business plan information that enables us to set the price control effectively;
- ambitious cost forecasts; and
- ambitious output proposals that go beyond baseline expectations.

7.16 We have also identified the following proposed key objectives of an efficiency incentive:

- incentivising efficient delivery of outputs in period; and

- sharing benefits/risks from out/underperformance in a way that contributes to addressing information asymmetry.

7.17 In addition to fulfilling the above proposed objectives, we consider that any truth telling or efficiency incentives should be well targeted, simple, and transparent. Incentives should also require a proportionate level of resource intensity throughout the regulatory process; this includes during the development of the incentive guidance, the preparation of submissions, and the assessment of submissions.

7.18 Below, we set out alternative options for truth telling and efficiency incentive design that would support each key objective. We review them with consideration of the proposed criteria set out in the previous paragraph.

OVQ28. Do you agree with our proposed key objectives for truth telling and efficiency incentives?

Truth telling incentive

7.19 We have considered an evolution of the BPI as an alternative to the RIIO-2 approach.

Evolution of the BPI

Incentivising good BP information

7.20 Stage 1 of the RIIO-2 BPI penalised companies that failed to meet minimum requirements on the level of information included in their business plans. Under an evolution of the BPI, we think that it is important to maintain this type of incentive, as we rely on this information to set the price control.³⁵

7.21 In RIIO-2, the minimum requirements covered both completeness and quality. Our consideration of each of these aspects is set out in Table 5 and discussed below.

³⁵ We also note that the quality assessment of business plans used by Ofwat in PR24 appears to serve a similar purpose as BPI Stage 1. As in BPI Stage 1, the company risks an upfront penalty and exclusion from other rewards under the incentive framework. See Ofwat (2022), Our final methodology for PR24, p. 154.

Table 5: Incentivising good business plan information

Completeness	Quality
<p>Targeted and specific minimum requirements for the information that needs to be included in the business plan.</p> <p>Detailed requirements would provide clarity and support an objective assessment focused on completeness.</p>	<p>Guidance provided but companies provided greater latitude in deciding what type of information best supports their proposals. We would assess information provided against a minimum standard of quality (eg Ofwat in PR24 requires "sufficient and convincing" information).</p> <p>This assessment would entail a greater degree of judgement than one more focused on completeness.</p> <p>However, it would provide greater scope for information sharing and a stronger incentive on BP quality.</p>

7.22 As an evolution of this approach for RIIO-3, we think that retaining both completeness and quality assessments remain appropriate. However, in the interests of simplifying the assessment we think focus should be placed on the assessment of completeness, while accepting that there will likely need to be some subjective assessment of quality, as both are important in ensuring good business plan information.

7.23 Additionally, and in line with feedback received and lessons learned in RIIO-2, we would want to make this stage of the evolved BPI simpler, more transparent, and less resource intensive. We think this could be achieved by:

- Reducing the number of requirements, by removing duplicative requirements or requirements that do not help with the setting of the price control;
- Improving the clarity of requirements and guidance on how we assess them;
- Making requirements specific to an area of the business plan, avoiding requirements that cut across multiple areas;
- Clearly indexing where each requirement applies to the business plan; and
- Avoiding duplication between the assessment of minimum requirements and the assessment of ambitious cost forecasts (discussed further below).

7.24 By providing more targeted and specific minimum requirements for areas of the business plan that are essential for the setting of the price control, we think that failure of this stage of the assessment should carry a penalty.

OVQ29. What are your thoughts on our proposals relating to minimum requirements under an evolved BPI approach?

Incentivising ambitious cost forecasts

- 7.25 In RIIO-2, the BPI required costs to be well justified (Stage 3) and rewarded the submission of stretching cost forecasts (Stage 4). We consider that both these aspects remain important to ensure business plans represent good value for money for consumers. However, reflecting stakeholder feedback, we are considering the following modifications as part of an evolution of this approach:
- Reviewing our guidance on the nature of information that we would require from companies for cost forecasts to be deemed high-confidence, or at least well justified. This reflects the request from some network companies for greater visibility on our approach to assessing confidence (particularly given the limited scope for comparative benchmarking in the transmission sector compared to distribution). Although we provided guidance on this in RIIO-2,³⁶ we will consider whether there is scope for further clarification or reviewing the range of evidence that we consider would support a high-confidence assessment. This would also consider stakeholder feedback relating to concerns with greater volatility of forecast costs in RIIO-3 because of factors such as supply chain pressures.
 - Potentially introducing a financial penalty for cost forecasts that are high relative to the benchmark that we use to set allowances. This would sharpen the incentive as suggested by some network companies. A similar result could be achieved instead through reputational incentives (eg giving more publicity to our assessment of the level of ambition of company forecasts, as per Ofwat's approach).
- 7.26 Alternatively, we could assess ambition more 'in the round', without a breakdown between high and lower confidence costs. For this option, we have drawn from the approach used by Ofwat in PR24. We would apply a reward if we consider that, on aggregate, a company has submitted ambitious cost forecasts, and a penalty if we deem that cost forecasts lack ambition.
- 7.27 The size of the reward/penalty could either reflect our judgement of the overall level of ambition of the proposal (as in Ofwat's case) or be calculated with a formula (eg rewards/penalties as a percentage of the gap between submitted and allowed costs, which is more consistent with the approach taken at RIIO-2).

³⁶ RIIO-2 Sector Specific Methodology Decision, para. 11.37.

7.28 Without the breakdown between high and lower confidence costs, this approach may be simpler and less resource intensive. On the other hand, despite providing broadly similar incentives to the RIIO-2 BPI Stage 3 and 4 (ie penalising poorly justified costs and rewarding stretching forecasts), there is a possibility that this dilutes the strength of the overall incentive package relative to RIIO-2:

- An assessment of ambition in the round means that areas where a company proposes stretching forecasts could balance out with others where forecasts appear to be high. This offsetting effect would reduce the scope for both rewards and penalties. This could be addressed by assigning rewards/penalties separately for each cost area (while the assessment would no longer be 'in the round', it would still retain a degree of simplicity without the high/lower confidence breakdown).
- In any case, removing the high/lower confidence breakdown would have implications for the design of the efficiency incentive sharing factor and the way it contributes to addressing information asymmetry, as discussed further below.

OVQ30. What are your thoughts on an 'in the round' assessment of cost forecasts as opposed to a high/lower confidence breakdown and assessment?

Incentivising ambitious output proposals that go beyond baseline expectations

7.29 Output proposals that go beyond business as usual expectations ie delivering better outcomes with the already revealed level of efficient costs, are one of the areas in which we consider there is the greatest information asymmetry between Ofgem and the companies. For this reason, we consider that failing to target this area may leave a gap in the incentive.

7.30 In RIIO-2, the BPI Stage 2 sought to incentivise this behaviour. However, as noted in our lessons learned at paragraphs 7.7 - 7.11, there were concerns relating to execution, regulatory burden and unintended consequences relating to perceived postcode lotteries. We consider that, given feedback from stakeholders, if this element of the incentive were to be retained in an evolved approach, the following changes would need to be made:

- provide clearer guidance on the justification and evidence we expect companies to provide to show that proposals go beyond business as usual;
- provide clearer guidance on the methodology companies should use to estimate consumer impact that is above business as usual;

- provide a standard template for submission and review;
- restrict the number of CVPs that can be submitted;
- outline key priority areas in which CVPs should be submitted; and
- introduce a materiality threshold.

7.31 These proposals are intended to address concerns identified and support companies in submitting higher quality CVPs under an evolved approach.³⁷ We think that this could reduce the resource burden on both Ofgem and the companies, as less effort will be spent on ultimately unsuccessful CVPs.

7.32 Recognising that there are potential improvements that could be made to CVP guidance and the role of CVPs, our preferred option at this stage under an evolved approach would be to remove CVPs completely. We think that this would best address the concerns raised about lack of 'value add', resource burden, and postcode lottery. As an alternative, we could consider output proposals in the round, akin to the approach taken by Ofwat in PR24. Companies could receive rewards for business plans which deliver stretching outcomes for consumers overall. This approach could be considered as simpler but may also reduce the transparency of the assessment for companies. It is less compatible with a discrete assessment of cost ambition, so would only be appropriate if costs ambition is also assessed 'in the round'.

OVQ31. What are your thoughts on an 'in the round' assessment of business plan ambition as opposed to requiring and assessing CVPs?

Incentive value

7.33 The BPI incentive value is important as it determines the strength of the signal sent to companies to provide Ofgem with the highest quality information at their disposal. In RIIO-2 the overall BPI value was capped at $\pm 2\%$, with specific calculation methodologies for each individual stage, described in the section above.

7.34 We are seeking views on whether the truth telling incentive value should change for RIIO-3. This can include adjusting the cap on the overall value of the incentive, for either of the approaches outlined; or adjusting the reward or penalty value for any of the three areas discussed in the preceding sections. We

³⁷ Some of these modifications were introduced in RIIO-ED2 and helped to improve the success rate of submitted CVPs.

welcome responses that relate to either financial or reputational penalties or rewards.

OVQ32. What are your thoughts on the size and strength of any truth telling incentive?

Other approaches to truth telling incentive

- 7.35 While our considerations to date have predominately focused on an evolution of the RIIO-2 BPI we are keen to get views on whether there are other alternative approaches that we could adopt for RIIO-3.
- 7.36 Any alternative approach should still incentivise the key objectives that we have identified at paragraphs 7.15 to 7.17.
- 7.37 We are keen to continue to engage with and work alongside network companies and stakeholders ahead of SSMD to develop alternative approaches as well as to consider the evolution of the BPI approach that we have set out in this section.

OVQ33. What are your thoughts on any alternative approaches that could be used instead of an evolved BPI?

Efficiency incentive

- 7.38 A key objective of efficiency incentives is promoting the efficient delivery of outputs in period by allowing companies to retain a share of underspending (and require them to bear a share of overspending). We believe that the TIM was a useful tool to promote efficiency during RIIO-2 and are proposing to maintain it for RIIO-3. As indicated in the Framework Decision, we are considering the best approach to setting sharing factors in RIIO-3.
- 7.39 In RIIO-2, the TIM sharing factors for each company were based on the CDIR. This approach linked sharing factors to our assessment of confidence: the incentive rate was higher if we had more confidence in our ability to set cost allowances independently of company views and lower if we had less confidence.³⁸
- 7.40 For RIIO-3 we have broadly considered the following options for setting the TIM sharing factors:
- retain the CDIR based approach, but with enhanced guidance;

³⁸ In RIIO-2, the range of TIM sharing factors across gas and electricity transmissions companies was between 33% to 49%. Gas and electricity distribution companies saw higher TIM sharing factors of 49% to 50%.

- utilise a mechanism like the Information Quality Incentive (IQI)³⁹ or the Ofwat PR24 approach;⁴⁰ and
- fix the TIM sharing factors in line with current rates, or on a sector basis.

Retain the CDIR-based approach

7.41 As noted above, given feedback from network companies we think that retaining the current approach would require an accompanying review of our guidance on how we assess confidence of different costs. The key advantage of this approach is that it reduces rewards to companies from outperforming allowances (and risks from underperforming) when our confidence in those allowances is lower. This contributes to addressing information asymmetry, as it reduces the potential benefit from inflating cost submissions in areas where an independent assessment is more challenging, and reinforces the incentive to submit information that would allow us to set allowances with higher levels of confidence. However, the assessment of confidence introduces a degree of complexity in the regime, and potentially increases the overall regulatory burden with companies seeking to offset the risk of a lower-confidence assessment with large regulatory submissions.

Utilise an IQI or Ofwat PR24-type approach

7.42 We could use a mechanism like the IQI or the Ofwat PR24 approach. These mechanisms, rather than reflecting confidence in our ability to set independent cost allowances, provide lower sharing factors to companies that have submitted less ambitious cost forecasts. While this is intended to incentivise companies to put forward their best view of costs, it does not directly address the information asymmetry that can arise in areas where it is more challenging for us to set allowances independently of company views. This is one of the key reasons the IQI was discontinued in RIIO-2.⁴¹ If the IQI were to be reintroduced we think that

³⁹ The IQI was implemented from DPCR5 (2005) to RIIO-1 (2013). In the IQI, the sharing factor was linked to the ratio of company submitted costs to Ofgem's view of efficient costs: submissions that were deemed less ambitious attracted lower sharing factors. Sharing factors were calibrated so that, in combination with upfront rewards/ penalties for submitted costs below/ above Ofgem's efficient view, they would, in theory, provide companies with an incentive to submit forecasts that reflected their best view of costs over the price control.

⁴⁰ In PR24, for BPs that are deemed "inadequate" or "lacking ambition" sharing factors are structured so that the company retains less of the benefit of outperformance than it does of cost overruns. If BPs are generally good or outstanding, the sharing factor is symmetric, with more scope for companies to retain benefits of outperformance.

⁴¹ These issues are provided in more detail in paragraphs 9.27-9.32 of the RIIO-2 SSMC. We note that, although information asymmetry is intrinsic to any price control (as regulators rely on company information to set allowances), arguably the CDIR addresses this more directly and, in this respect, represented an improvement relative to the IQI.

it would need to have a stronger incentive to deliver the required outcomes for consumers.

Fix the TIM sharing factors in line with current rates

- 7.43 An alternative and potentially much simpler approach, could involve fixing the TIM sharing factors in line with their current rates, as presented in Table 4 above. While we recognise the feedback that we have received thus far from network companies that suggest the incentive rates could be strengthened, and the views from consumer bodies who suggest that they could be weakened, there is little quantitative evidence available to suggest what impact the current sharing factors are having on in-period performance.
- 7.44 The level of the sharing factor determines companies' earnings (or loss) potential in case they do not spend in line with their allowance. If we set sharing factors too high, the 'price' consumers have to bear when companies underspend may be higher than required. If we set sharing factors too low, then companies may not invest effort in finding cost efficiencies. We would welcome further views from stakeholders on the strength of the incentive rate.
- 7.45 While there is consistency in the current sharing factors across the gas distribution networks, there is some variation in the electricity and gas transmission sector. If we were to fix the sharing factors for RIIO-3 we would also be interested in views on whether this variation remained appropriate, or if a common approach across sectors would be more appropriate.
- 7.46 Whether we retain a confidence-dependent sharing factor, move to an approach closer to the IQI or Ofwat's PR24, or fix sharing factors in line with current rates, we will consider responses that suggest compelling reasons for changing the efficiency incentive sharing factor in RIIO-3 relative to RIIO-2. Relevant considerations may include (but not necessarily be limited to) feedback from network companies indicating greater volatility of forecast costs into RIIO-3, and whether this might warrant reducing sharing factors over the next price control.
- 7.47 It is worth considering whether the greater cost volatility that some network companies expect over RIIO-3 should be dealt with through changes to the level of the efficiency incentive, or if instead it would be more appropriate to address them within other elements of the price control, such as UMs.

OVQ34. What are your thoughts on the options for calculating the sharing factors and do you see strong reasons for changing the overall strength of the sharing factors relative to RIIO-2?

Next steps

7.48 Following the publication of the SSMC, we will work with the network companies and stakeholders ahead of the SSMD and publication of the Business Plan Guidance.

8. Managing Uncertainty

Introduction

8.1 The RIIO price controls operate by setting allowances and targets for a future period, with incentives on companies to outperform these. However, forecasting costs and outputs with confidence for the duration of a price control is challenging for several reasons:

- a network company may need to conduct an activity or make an investment that it had not accounted for (eg due to a change in legislation or government policy);
- the amount of an activity that a network company needs to conduct may have changed; and
- the cost of an activity that a network company needs to conduct may have changed.

8.2 If this uncertainty is outside of a company's control and has the potential to affect its expenditure significantly, then the use of a UM may be appropriate. UMs allow network company revenues to change in line with changes in requirements. This reduces our need to fix allowances based on a forecast view of requirements and to protect consumers and companies from forecasting risk.

8.3 In our Framework Decision, we proposed a range of UMs to deal with these forecasting risks:

- where the needs case or the scope of projects is unclear, we propose to use re-openers (such as the net zero re-opener we used in RIIO-2 electricity);
- where there is uncertainty as to evolution of quantities or demand, we propose to use volume drivers;
- where the need for work has been identified but the specific nature of work or costs are uncertain, we propose to adopt Use It or Lose It (UIOLI) allowances;
- where there is uncertainty over the evolution of prices (such as the prices of labour and construction materials), we propose to use indexation, where possible; and
- for expenditure that is entirely outside the network company's control, we will continue to use pass-through costs (such as for business rates).

8.4 In RIIO-2, we set up UMs that are common across sectors, others which are sector-specific or shared across some but not all sectors, and others which are

company-specific within a sector. We propose to continue with this approach in RIIO-3 to ensure that UMs are correctly focused. The table below sets out a summary of all the UMs we set in RIIO-2 for the ET, GT and GD sectors and where further information can be found on our proposed approach to each of these in RIIO-3.

Table 6: List of UMs from RIIO-2

UM Name	UM Type	Companies Applied To	Further Detail
Cross Sector			
Cost of Debt	Indexation	All	Finance Annex, Chapter 2
Cost of Equity	Indexation	All	Finance Annex, Chapter 3
Real price effects	Indexation	All	Overview, Chapter 9
Inflation indexation of RAV and allowed return	Indexation	All	Finance Annex, Chapter 3
Ofgem Licence Fee	Pass-through	All GDNs, National Gas	This chapter
Business Rates	Pass-through	All	This chapter
Pension Scheme Established Deficit Repair	Pass-through	All	Finance Annex, Chapter 10
Bad Debt	Pass-through	All GDNs, National Gas	This chapter
Tax Review	Re-opener	All	Finance Annex, Chapter 7
Cyber Resilience Operational Technology	Re-opener, UIOLI	All	Overview, Chapter 11
Cyber Resilience Information Technology	Re-opener	All	Overview, Chapter 11
Physical Security	Re-opener	All	This chapter
Net-Zero	Re-opener	All	This chapter
Non-operational IT Capex	Re-opener	All	This chapter
Co-ordinated Adjustment Mechanism	Re-opener	All	This chapter
Net Zero and Re-opener Development Fund	UIOLI	All	This chapter

UM Name	UM Type	Companies Applied To	Further Detail
Opex Escalator	Volume Driver	All ETOs, National Gas	This chapter
Net Zero Pre-Construction Work and Small Net Zero Projects	Re-opener	National Gas, All GDNs	This chapter
Sector-Specific			
Temporary Physical Disconnection Costs	Pass-through	All ETOs	ET Annex, Chapter 5
Generation Connections Volume Driver	Volume Driver	All ETOs	ET Annex, Chapter 2
Visual Impact Mitigation	Re-opener	All ETOs	ET Annex, Chapter 2
Large Onshore Transmission Investment	Re-opener	All ETOs	ET Annex, Chapter 2
Medium Sized Investment Projects	Re-opener	All ETOs	ET Annex, Chapter 5
Pre-Construction Funding	Re-opener	All ETOs	ET Annex, Chapter 2
Access Reform Change	Re-opener	All ETOs	ET Annex, Chapter 5
Accelerated Strategic Transmission Investment	Re-opener	All ETOs	ET Annex, Chapter 2
Distribution Network Pension Deficit Charge	Pass-through	All GDNs	GD Annex, Chapter 5
Third Party Damage and Water Ingress Costs	Pass-through	All GDNs	GD Annex, Chapter 5
Provision of Information Relating to Gas Illegally Taken	Pass-through	All GDNs	GD Annex, Chapter 5
Miscellaneous	Pass-through	All GDNs	GD Annex, Chapter 5
Central Data Service Provide Costs	Pass-through	All GDNs	GD Annex, Chapter 5
Shrinkage	Pass-through	All GDNs	GD Annex, Chapter 5
NTS Exit Flat/Flex Capacity Costs	Pass-through	All GDNs	GD Annex, Chapter 5
Fuel Poor Network Extension Scheme	Volume Driver	All GDNs	GD Annex, Chapter 4
Domestic Connections	Volume Driver	All GDNs	GD Annex, Chapter 4
Tier 2A Mains and Service Replacement	Volume Driver	All GDNs	GD Annex, Chapter 3

UM Name	UM Type	Companies Applied To	Further Detail
Vulnerability and carbon monoxide	UIOLI	All GDNs	GD Annex, Chapter 4
HSE Policy	Re-opener	All GDNs	GD Annex, Chapter 3
Tier 1 Stubs Repex Policy	Re-opener	All GDNs	GD Annex, Chapter 3
Heat Policy and Energy Efficiency	Re-opener	All GDNs	GD Annex, Chapter 2
Diversions and Loss of Development Claims Policy	Re-opener	All GDNs	GD Annex, Chapter 3
Multiple Occupancy Buildings Safety	Re-opener	All GDNs	GD Annex, Chapter 3
New Large Load Connections	Re-opener	All GDNs	GD Annex, Chapter 4
Smart Metering Roll-out Costs	Re-opener	All GDNs	GD Annex, Chapter 4
Specified Streetworks Costs	Re-opener	All GDNs	GD Annex, Chapter 4
Company-Specific - ET			
Energy Not Supplied	Pass-through	SHETP	ET Annex, Chapter 5
Demand Connections	Volume Driver	NGET, SPT	ET Annex, Chapter 2
Wider Works	Volume Driver	NGET	ET Annex, Chapter 5
Legacy Baseline Connections	Volume Driver	SHETP	ET Annex, Chapter 5
Enhanced Environmental Requirements	UIOLI	SPT	ET Annex, Chapter 2
Substation Auxiliary Systems	UIOLI	NGET	ET Annex, Chapter 5
Net Zero Fund	UIOLI	SPT	ET Annex, Chapter 2
Net Zero Carbon Capital Construction	UIOLI	NGET	ET Annex, Chapter 2
SF6 Asset Intervention	Re-opener	NGET	ET Annex, Chapter 2
Subsea Cable	Re-opener	SHETP	ET Annex, Chapter 5
Uncertain Non-load Related Projects	Re-opener	SPT	ET Annex, Chapter 5
Fibre Wrap Replacement	Re-opener	NGET	ET Annex, Chapter 5
Civil Related Works	Re-opener	NGET	ET Annex, Chapter 5
Tower Steelworks and Foundations	Re-opener	NGET	ET Annex, Chapter 5

UM Name	UM Type	Companies Applied To	Further Detail
Tyne Crossing	Re-opener	NGET	ET Annex, Chapter 5
Company-Specific - National Gas			
Policing Costs	Pass-through	National Gas	GT Annex, Chapter 5
PARCA Termination Value	Pass-through	National Gas	GT Annex, Chapter 5
Hynet FEED Study	Pass-through	National Gas	GT Annex, Chapter 5
Adjustment to Pre-Construction Works	Pass-through	National Gas	GT Annex, Chapter 5
Gas Conveyed to Independent Systems	Pass-through	National Gas	GT Annex, Chapter 5
Central Data Service Provider Costs	Pass-through	National Gas	GT Annex, Chapter 5
Bacton Terminal	Re-opener	National Gas	GT Annex, Chapter 3
Compressor Emissions	Re-opener	National Gas	GT Annex, Chapter 2
Kings Lynn Subsidence	Re-opener	National Gas	GT Annex, Chapter 3
Funded Incremental Obligated Capacity	Re-opener	National Gas	GT Annex, Chapter 5
Asset Health	Re-opener	National Gas	GT Annex, Chapter 5
Uncertain Costs - Quarry and Loss, Pipeline Diversions	Re-opener	National Gas	GT Annex, Chapter 5
Company-Specific GD			
Stranraer	Pass-through	SGN (Scotland only)	GD Annex, Chapter 5

Cross sectoral UMs

Net Zero re-opener

RIIO-2 approach

- 8.5 The Net Zero re-opener was introduced in RIIO-2 across all sectors to increase adaptability of the price control to changes connected to meeting net zero targets, which are not otherwise captured by any other RIIO-2 mechanism.
- 8.6 The re-opener therefore has a wide scope to ensure that the RIIO-2 price control can be adaptable to a wide range of developments. The broadly framed re-opener allows us to respond to changes in government policy, the successful trial of new technologies, changes in pace or nature of the uptake of low carbon technologies and new investment arising from the agreement of a Local Area Energy Plan (or equivalent arrangements).
- 8.7 The re-opener has a materiality threshold based on any adjustment exceeding 0.5% of annual average ex ante base revenue when multiplied by the TIM rate.
- 8.8 The mechanism can be triggered by Ofgem, at any time throughout the price control. The re-opener has not yet been used in RIIO-2.

Our proposed approach

- 8.9 We propose to maintain the Net Zero re-opener for RIIO-3 with the same UM parameters; being Authority triggered with a materiality threshold of 0.5% of ex ante base revenue.
- 8.10 We recognise that while the re-opener has not yet been triggered in RIIO-2, this mechanism acts as a safe backstop to ensure that there is an avenue to address a wide range of potential developments related to meeting the net zero targets that may not be covered elsewhere in the price controls.

OVQ35. Do you agree with our proposal to retain the Net Zero Re-opener with its current scope and parameters for RIIO-3?
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Net Zero and Re-opener Development Fund UIOLI allowance

RIIO-2 approach

- 8.11 We introduced the Net Zero and Re-opener Development Fund UIOLI allowance in RIIO-2 to fund small net zero facilitation projects and to allow early development work on projects that companies intend to bring forward under the following re-openers:

- ET, GT and GD - Net Zero Re-opener
- GT and GD only - Net Zero Pre-construction and Small Projects Re-opener
- ET only - Medium Sized Investment Projects (MSIP) Re-opener
- GD only - Heat Policy re-opener and New Large Load Re-opener (if Net Zero related)

8.12 This UIOLI allowance provided an additional £88.1m of baseline funding to ensure that network companies do not delay important development work, re-opener submissions are well developed and that smaller Net Zero facilitation projects, such as repeatable hydrogen or green gas projects, do not fall through the cracks.

8.13 In RIIO-GD2 and RIIO-GT2, the allowance has largely been used to progress hydrogen projects. In RIIO-ET2, companies have used this allowance to undertake preconstruction works for MSIP projects.

Our proposed approach

8.14 We propose to maintain this UIOLI allowance for RIIO-3, in order to fund small Net Zero facilitation projects and early development work in RIIO-3 for the GT, ET and GD sectors.

8.15 However, the scope of this allowance may vary relative to RIIO-2 to take account of the changing context for these types of projects and interactions with other RIIO-3 mechanisms.

8.16 In gas, many of the projects funded through this allowance in RIIO-2 have been largely hydrogen related, which may no longer be needed following the creation of the HTBM and government decisions on hydrogen heating in 2026, as discussed in Chapter 4.

8.17 In ET, projects funded through this allowance in RIIO-2 have allowed for pre-construction works to be undertaken for MSIP projects. However, it may be more efficient to integrate this funding with the RIIO-ET3 equivalent(s) of MSIP.

OVQ36. What are your views on our proposal, in principle, to retain the Net Zero and Re-opener Development Fund UIOLI for RIIO-3? What are your views on the types of projects it could fund and how it would interact with other sector specific price control mechanisms?

Net Zero Pre-construction Works and Small Net Zero Projects (NZASP) Re-opener

RIIO-2 approach

- 8.18 The purpose of the NZASP re-opener is to allow gas sector companies to access funding for more material design and pre-construction work than that in scope of the Net Zero and Re-opener Development Fund UIOLI allowance. This re-opener also allows companies to progress smaller Net Zero facilitation projects that are not in scope of the Net Zero Re-opener but exceed the materiality cap of (or are not suitable for) the Net Zero and Re-opener Development Fund UIOLI allowance.
- 8.19 Gas companies have had funding granted through this re-opener for feasibility and Front End Engineering Design (FEED) studies, hydrogen trials, methane reduction projects and other discreet net zero projects.

Our proposed approach

- 8.20 We are seeking views on our initial position to retain this re-opener mechanism for RIIO-3 with its current parameters and scope, noting that the mechanism has allowed for valuable projects to receive funding in RIIO-2.
- 8.21 However, we are also seeking views on whether there is value in there being two separate net zero related re-openers for gas licensees, and whether merging the Net Zero Re-opener and the Net Zero Pre-construction Works and Small Net Zero Projects Re-opener would simplify the approach to providing funding in relation to net zero-related uncertainty. We recognise that if they were to be merged, the scope of a single mechanism would need to be considered.

OVQ37. Do you think we should retain the NZASP for GD and GT? What should its scope be and what kind of projects would you expect to be funded through this re-opener in RIIO-3?

OVQ38. Do you have any views on consolidating the net zero related re-openers and the UIOLI allowance?

Non-operational IT capex re-opener

RIIO-2 approach

- 8.22 For RIIO-2, non-operational IT capex is funded through baseline allowances that are subject to the TIM. A re-opener mechanism was introduced to deal with projects proposed in RIIO-2 business plans not afforded ex-ante allowances and

for new statutory/regulatory requirements relating to IT systems and deliverables.

- 8.23 For all licensees, the RIIO-2 mechanism had a re-opener window at the beginning of RIIO-2, as well as a window at the mid-period of RIIO-2 which provided network companies with an opportunity to submit re-opener applications. The re-opener can also be Authority triggered, allowing changes to statutory or regulatory requirements relating to non-operational IT capex to be taken into account during the price control.
- 8.24 This mechanism has been widely utilised so far in RIIO-2, with almost all network companies having projects approved through the re-opener. Ofgem has also triggered this re-opener in response to changing regulatory requirements.

Our proposed approach

- 8.25 For RIIO-3, we propose to retain a UM which allows network companies to bring forward additional projects on non-operational IT capex.
- 8.26 For RIIO-ED2, we introduced the Digitalisation Re-opener to allow DNOs to recover costs they incur or expect to incur above a 0.5% materiality threshold where a change in their roles and responsibilities requires them to establish new or improved digital services.
- 8.27 We are seeking views on our proposal to evolve the non-operational IT capex re-opener, replacing it with a mechanism comparable with the RIIO-ED2 Digitalisation Re-opener.

Coordinated Adjustment Mechanism (CAM) re-opener

RIIO-2 approach

- 8.28 We introduced the Coordinated Adjustment Mechanism (CAM) re-opener in RIIO-2 to enable reallocation of activities from one licensee's price control to another licensee's price control. It is intended to protect consumer interests by enabling the reallocation of responsibility for, and revenue associated with, an output or project from one licensee to another who can deliver that output or project with greater overall value for consumers.
- 8.29 The mechanism has an annual re-opener window in May and applications can be raised by licensees only on a voluntary basis. There is also no materiality threshold associated with this mechanism, as submissions are assessed on the scale of the increased benefit of reallocating activities for consumers, rather than the project costs.

8.30 The CAM has not yet been utilised in the RIIO-2 price control and we note that some licensees have signalled that there is a lack of incentive to use the mechanism as it currently exists, given the work involved in reallocating allowances from one licensee to another.

Our proposed approach

8.31 We propose to maintain the CAM for RIIO-2 as we consider it a useful mechanism that can facilitate greater benefits being delivered to consumers where an output/project is reallocated to another licensee.

8.32 However, we note that the mechanism has not been utilised in the RIIO-2 price control to date and the feedback from network companies that there is no reasonable incentive to utilise the mechanism.

8.33 We consider that the mechanism could have value in RIIO-3 given the increased role of whole systems strategic planning, including managing TO/DNO interactions at their voltage boundaries and DNO/GDN interactions around electrification of heat.

8.34 We are seeking views from respondents to this consultation on the proposal of evolving and enhancing this mechanism to deliver the whole system benefits it is intended to deliver.

OVQ39. Do you agree with our proposed position to retain the Coordinated Adjustment Mechanism for RIIO-3? If it were to be retained, what design and incentive considerations could we implement to enhance the utilisation and value of this mechanism?

Physical Security

8.35 Network companies are responsible for a number of sites that are considered by the government as Critical National Infrastructure (CNI). Through the Physical Security Upgrade Programme (PSUP), network companies have worked with government and the National Protective Security Authority (NPSA)⁴² to identify CNI sites and implement measures to enhance their physical security where required.

⁴² Previously the Centre for the Protection of National Infrastructure (CPNI).

RIIO-2 approach

- 8.36 In RIIO-2 we provided network companies with allowances to implement the physical security enhancements recommended by DESNZ and NPSA.
- 8.37 At the time of setting the RIIO-2 price controls, there was some uncertainty around whether the list of CNI assets or NPSA guidance would be updated during the price control. This would require network companies to undertake activities that they had not anticipated at the outset of the price control. Therefore we also included a physical security re-opener to adjust allowances if the need for additional work materialised.

Our proposed approach

- 8.38 DESNZ is currently in the process of reviewing its physical security policy. This is expected to result in updated guidance which should be published in spring 2024.
- 8.39 Whilst this updated guidance document should be published in time to inform network company business plans for RIIO-3, we recognise that the need for further work could materialise in the event of changes to the CNI list or additional changes to government policy during the RIIO-3 price control.
- 8.40 Therefore, we are considering including a re-opener to adjust allowances in the event of changes to the scope of physical security work required during RIIO-3. However, instead of establishing a dedicated re-opener for physical security, we propose instead to allow network companies to use the new resilience re-opener for costs associated with this area. Please refer to paragraphs 8.42-8.54 below for more information.
- 8.41 We think that introducing a broader resilience re-opener, through which physical security costs can be submitted, would reduce the overall complexity of the RIIO-3 price control.

OVQ40. Do you agree with our proposal to allow physical security costs to be submitted through a broader resilience re-opener?
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Resilience Re-opener

- 8.42 The GB energy system is facing an ever-changing and growing set of risks. Over recent years, we have seen the COVID-19 pandemic, the invasion of Ukraine, as well as the increasing impact of climate change. Additionally new technologies are being introduced that bring with them a multitude of opportunities but also a number of risks.

8.43 The energy system is also evolving, especially with regard to the services and flexibility that organisations can provide to each other and to the system. Amidst this changing landscape, network companies must make sure that their organisations, assets and systems are resilient against a range of risks that they face, both now and in the future.

RIIO-2 approach

8.44 In RIIO-2 we provided some network companies with specific allowances and re-openers to manage specific risks such as a conventional attack on gas or electricity infrastructure (all network companies) or failure of the National Electricity Transmission System (ETOs only).

8.45 Whilst this approach has worked well to date, we are aware that there is an increasing requirement on network companies to adequately plan and prepare for a range of high impact, low likelihood risks.

8.46 Many of these risks are set out in the Government's National Risk Register⁴³ and include:

- Loss of Positioning, Navigation and Timing (PNT) services;
- Simultaneous loss of all fixed and mobile forms of communication;
- Regional failure of the electricity network;
- Failure of gas supply infrastructure;
- Severe space weather; and
- Major outbreak of a pandemic.

8.47 In addition to this, following the invasion of Ukraine, network companies have been working closely with DESNZ to review and enhance the emergency measures in place to respond to potential energy disruptions and on how to mitigate their impacts in the event that these disruptions do occur.

8.48 Finally, the NIC published its second National Infrastructure Assessment in October. This set out a number of recommendations to be implemented by 2025, including the setting of outcome-based resilience standards and putting in place systems for cross-sector stress testing which address interdependencies and the risk of cascade failures.

⁴³[National Risk Register 2023 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/115242/national-risk-register-2023.pdf)

Our proposed approach

- 8.49 In light of this changing risk landscape, we propose to introduce a new resilience re-opener for all sectors that can adjust allowances if the government or the FSO requires network companies to undertake activities that they had not planned for at the outset of the RIIO-3 price control.
- 8.50 We think that the scope of this proposed re-opener could cover:
- activities associated with risk assessment or mitigation work for risks that are included in the National Risk Register and, where DESNZ/the FSO has indicated that further work from network companies is required;
 - activities associated with changes to emergency measures or protocols. This could include implementing measures to mitigate the impacts of emergency measures such as the Electricity Supply Emergency Code or Low Frequency Demand Disconnection, where costs for these activities have not been included in baseline allowances;
 - activities associated with changes to engineering standards, resilience standards, system design and stress testing; and
 - activities related to enhancing the physical security of CNI sites or the personnel security of individuals with access to CNI sites and systems.
- 8.51 We propose to work with network companies through the relevant working groups ahead of the publication of our SSMD to determine the scope, trigger and re-opener window dates for our proposed mechanism.
- 8.52 We recognise that the network company activity associated with high impact low probability risks is often driven by government and is out of network companies' control. There is also significant uncertainty around the need, scope and timing for network company investment to comply with future resilience standards.
- 8.53 We recognise that resilience policy does not develop in five-year segments, aligned with our proposed price control timetable. Accordingly, there may be circumstances during the price control period where assumptions made to set the price control are no longer appropriate.
- 8.54 Where this is the case, it may be necessary to make adjustments to allowances during the period, rather than waiting until the next price control review. This is why we believe it would be appropriate to introduce the resilience re-opener mechanism into each of the RIIO-3 price controls.

OVQ41. Do you agree with our proposed approach to introduce a resilience re-opener?

Opex Escalator

- 8.55 The opex escalator was introduced in RIIO-2 as an automatic volume driver mechanism to ensure electricity and gas transmission companies are funded for varying operational costs associated with capital investments delivered through specified UMs. Calibrated using an econometric analysis approach for closely associated indirects and complemented by a percentage uplift for network operating costs, this volume driver avoids the need for separate assessment of indirect costs on individual projects.
- 8.56 We propose to retain the opex escalator mechanism for RIIO-3, as we see benefits in having an automatic mechanism for varying operational costs, particularly in light of the expected increase in major project submissions. However, we intend to review the scope of application of the volume driver to ensure there is no risk of overlaps (or gaps) between baseline allowances and additional allowances provided through re-openers. We welcome stakeholders' views on how this mechanism could be adapted to the changes in regulatory and investment environments expected in RIIO-3 and beyond.
- 8.57 Moreover, as part of the ongoing development of the cost assessment approach for RIIO-3, we propose to review the methodology underlying the opex escalator to consider whether there is scope for improvements to the calibration of the volume driver's parameters. For more details on the assessment approach, see Chapter 5 in the ET Annex.

OVQ42. Do you have any views on whether the opex escalator should be retained and if so, how we could evolve the opex escalator for RIIO-3?

Pass-through costs

- 8.58 In RIIO-2, we implemented pass-through mechanisms to adjust allowances for costs over which network companies have limited or no control and which may be passed through to consumers. These mechanisms protect network companies from cost increases, or decreases, that are outside of their control, reducing the risk exposure that could otherwise result in higher financing costs to consumers.
- 8.59 This section summarises our proposals for the cross-sector pass-through mechanisms. See Chapter 5 of the relevant sector Annexes for sector-specific pass-throughs.

Pension Scheme Established Deficit

8.60 This pass-through mechanism was implemented in previous price controls to reflect our commitment to consumer funding of deficits in defined benefit pension schemes attributable to service before certain specified cut-off dates. We discuss our proposal for RIIO-3 in the Finance Annex.

Bad debt

8.61 This mechanism was introduced as a pass-through cost for the gas sector in RIIO-2 to enable network companies to recover amounts associated with supplier-related bad debts. The mechanism was subsequently modified to reflect bad debt as a reduction in recovered revenue, rather than a pass-through cost which means it is recovered via a correction factor or true up. The advantage to this approach is that recovered revenue does not double count bad debt as revenue. We propose to retain this overall approach for RIIO-3; however the definition of bad debt will be reviewed as part of licence drafting to ensure all components continue to be relevant.

Ofgem licence fee costs

8.62 Ofgem licence fee costs are payments made by non-ETO licensees to the Authority in accordance with standard licence conditions. In previous price controls they have been treated as pass-through costs. We propose to retain this pass-through mechanism for RIIO-3.

Business rates (prescribed rates)

8.63 Prescribed (business) rates comprise business rates in England and Wales, non-domestic rates in Scotland and any equivalent tax or duty replacing those rates and levied on licensees. In previous price controls they have been treated as pass-through costs. We propose to retain this pass-through mechanism for RIIO-3.

Effective monitoring of UMs

8.64 In RIIO-2 we have significantly increased the number of incentives and UMs, and this results in much more monitoring, which increases the regulatory burden on Ofgem and the network companies. It also increases the number of points where information asymmetry might arise: greater use of UMs is designed to allow flexibility to companies for changes during the period. However, if not used consistently, this flexibility could result in higher costs for consumers. For

example, if costs are allocated differently between the planning, general cost incentives, and UMs, then consumers may end up 'paying twice'.

- 8.65 This is a particular risk for mechanisms such as UIOLI allowances that treat costs differently to the TIM. The risks and costs associated with operating these mechanisms are likely to get larger if more costs are assessed outside of the core business planning process, for example as a result of in-period reviews of projects with multiple drivers (see ET annex). We have seen examples in RIIO-2 of some mechanisms, such as the Cyber Resilience UIOLI, being used for costs that we consider were already included in other parts of the RIIO-2 assessment. We have also seen a lack of consistency between planned and actual cost categorisation on some projects subject to in-period review. This may be inadvertent, but in our view companies should make sufficient efforts to ensure that submissions are consistent with each other and with Ofgem's expectations.
- 8.66 Although Ofgem may be able to ensure this consistency through case-by-case reviews, we also consider that this should not always have to be the case. Ofgem should also be able to rely on the consistency of company submissions. This should benefit consumers and companies, by allowing a lighter regulatory burden, and also ensuring that cost measures are based on the best possible information.
- 8.67 We welcome views on how this could be achieved: including two possible options:
- whether there should be increased governance requirements on companies providing costs and outputs submissions to Ofgem during RIIO-3; and
 - adjustments to reduce the allowances under UMs to companies that are found to be repeatedly providing inconsistent data against consumers' interests.

OVQ43. Do you have any views on how we should effectively monitor the delivery of UMs?
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9. Cost of Service

- 9.1 To ensure that the transition to net zero comes at low cost for existing and future consumers, we expect network companies to deliver services as efficiently as possible. In this respect, it is important to establish the cost assessment toolkit that will enable us to determine the efficient level of costs at which network companies can carry out their activities.
- 9.2 In RIIO-2, we used a toolkit approach to cost assessment, ie we relied on a range of quantitative and qualitative tools and techniques to determine a robust view of network companies' efficient costs, which in turn inform baseline allowances. We propose to continue using a toolkit approach for RIIO-3, while looking for opportunities for improvement and/or simplification where appropriate. Our detailed proposals for the development of the cost assessment approach for RIIO-3 can be found in the relevant sector annexes. The remainder of this section focuses on adjustments to baseline allowances due to specific price pressures and our assumption on future productivity improvements.

Real Price Effects and ongoing efficiency

- 9.3 We set price control allowances that are indexed to a general inflation measure (ie the Consumer Price Index including owner occupiers' housing costs (CPIH)). To the extent that CPIH does not adequately capture external changes to prices that network companies face, we may make further adjustments to allowances. We refer to these adjustments as RPEs. In RIIO-2, these adjustments were based on forecasts for the indices which make up the overall RPE index, and have been 'trued up' annually based on outturn differences between CPIH and input price indices. For RIIO-3, we propose to retain the same approach to RPEs as in RIIO-2. However, we welcome stakeholders' views on whether the approach is suitable for RIIO-3 or whether there are specific methodological aspects (eg selection of indices, notional structure, etc.) that could be improved and/or simplified. Moreover, we welcome views on whether RPEs are a sufficient mechanism to tackle market volatility and consequent supply chain challenges experienced by network companies in recent years.
- 9.4 To help inform our view of the efficient level of costs for each network company, we also account for the productivity improvements we expect them to make over the price control period. We refer to ongoing efficiency assumptions as the reduction in the volume of inputs required to produce a given volume of output, ie the productivity improvements that we consider even the most efficient company is capable of achieving.

- 9.5 Setting an appropriate ongoing efficiency challenge is vital to ensuring network companies continually strive to identify and exploit opportunities to optimise their processes and operations. By doing so, they are able to remain resilient in the face of change and ensure value for money for consumers. In RIIO-2, we set the ongoing efficiency challenge at 1% per annum based on Total Factor Productivity estimates produced using EU KLEMS data and other sources.⁴⁴ Overall, our initial thinking is that we consider the RIIO-2 approach to be broadly suitable for RIIO-3. Nonetheless, we welcome stakeholders' views on i) whether the approach is suitable for RIIO-3, ii) whether there are specific methodological aspects that could be improved and/or simplified, or iii) additional data sources or evidence that could be used to inform setting the ongoing efficiency challenge.
- 9.6 For both RPEs and ongoing efficiency, we intend to work with stakeholders to review their potential application to re-openers.

OVQ44. Do you have any views on whether to evolve the RIIO-2 methodologies for RPEs and ongoing efficiency for RIIO-3, and if so how?

OVQ45. Do you have any views on the potential application of RPEs and ongoing efficiency to re-opener applications?

⁴⁴ Specifically, at Final Determinations for RIIO-GD2 and RIIO-T2, for all network companies we set the ongoing efficiency challenge at 1.15% per annum for capex (and repex) and 1.25% per annum for opex. However, following CMA appeals, the ongoing efficiency challenge was changed to 0.95% per annum for capex (and repex) and 1.05% per annum for opex for all GDNs and SPT (ie the appellants, for more details see [Energy licence modification appeals 2021 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/energy-licence-modification-appeals-2021)). In RIIO-ED2, the ongoing efficiency challenge was set at 1% per annum at the totex level.

10. Providing a Stable and Predictable Financial Framework

- 10.1 The costs of operating and developing the gas distribution (GD), gas transmission (GT) and electricity transmission (ET) networks include the financing costs that the network companies incur. Consumers ultimately pay for these costs. These include the returns that we allow for debt and equity capital invested into network companies. We use incentives to encourage network companies to drive down costs and improve service quality. These incentives, as well as the ability for a company to make decisions around its actual capital structure, mean that a company's actual return can be higher or lower than its allowed return.
- 10.2 We set a financial framework, and associated policies and methodologies, for price controls that are broadly stable and predictable over time. This broad regulatory stability gives investors the confidence to continue to invest in the sector. It also helps us to achieve a low cost of capital without constraining our ability to act in the interests of consumers by adapting to changing circumstances and through adopting best practice. We have sought to maintain stability of the financial framework through our Future Systems and Network Regulation (FSNR) Framework Decision, published in October 2023.
- 10.3 In our FSNR Framework Decision, we noted that our approach to estimating the cost of capital and assessing financeability would be substantially in line with the approach taken in RIIO-2. Specifically, we:
- would continue to use the Capital Asset Pricing Model (CAPM) as the primary tool when estimating the cost of equity;
 - would continue to calculate a single cost of equity (at a notional level of gearing) for each network sector;
 - do not consider varying the allowed return on equity by either archetype or by activity to be required or beneficial. However, differences in estimation of the appropriate beta may lead to a different cost of equity for the ET and gas sectors;
 - consider a 5-year review period remains appropriate for setting the allowed return and assessing financeability; and
 - would continue to consider financeability 'in the round'.
- 10.4 We aim to keep the financial policies and methodologies stable from RIIO-2, where appropriate. However, we are also cognisant that appropriate evolution,

particularly to deal with macro developments that create new challenges or where updates to best practice can be identified, is likely to underpin regulatory credibility and support the ongoing attractiveness of investment in the sector. For RIIO-3, we see two macro developments as compelling us to review the way we use our regulatory finance toolkit.

10.5 For ET, there is a step-change in infrastructure investment needs across GB to build out a zero carbon, more flexible and more secure energy system at pace. This need to diversify risk across the energy system, attract investment and support climate change goals is coming at a time when the government's net zero policy will imminently be reflected in a new statutory duty for GEMA. To fulfil that duty, we need to offer consistency, clear signals and direction so as to provide certainty and assurance to investors that projects are viable, investable and deliverable.

10.6 Through the next ET price control and beyond, we expect network companies will need to seek 'fresh' equity from their investors over and above what they would be able to fund via retained earnings, and at a time where there is greater competition for investment and capital in the UK water and global regulated infrastructure sectors. We plan to develop the notion of 'investability', alongside our existing financeability assessment, to better understand whether the allowed return on equity is sufficient to retain and attract the equity capital that the sector requires. This may involve pulling a combination of levers such as reviewing:

- the beta sample to ensure it continues to appropriately reflect the forward view on risk;
- the equity issuance allowance to ensure it appropriately reflects market conditions;
- the trailing average cost of debt methodology to ensure it places sufficient weight on new debt issuances driven by higher Regulatory Asset Value (RAV) growth; and
- regulatory depreciation policy to ensure it continues to reflect useful economic lives.

It may also require new tools to be developed. We welcome views and evidence from stakeholders on how investability should be used and assessed with the above objective.

10.7 The challenges for the gas sector are different, with demand expected to fall over time as the energy system adapts to support the transition to a carbon-free economy by 2050 to achieve net zero. For GD and GT, since the RIIO-2 price control reviews, we have had greater clarity on government net zero policy and potential decarbonisation pathways under the Electricity System Operator's (ESO) Future Energy Scenarios (FES). The latter forecasts a significant reduction in gas volumes in distribution and transmission from the mid-2030s across all four of its key scenarios. A key implication is the present value of the current level of depreciation charge per consumer (using kWh demand as a proxy) is forecast to fall significantly short of the remaining RAV. This raises the question of who should pay for the gap. Hypothetically, the possible avenues are:

- Government/taxpayers, which is clearly dependent on future government policy;
- Investors, although we recognise this would create asset stranding risk, could undermine regulatory stability and predictability and is likely not in the consumer interest;
- A smaller number of consumers who remain on the network in future, more of whom may fall into vulnerable categories;
- Current consumers while the user base remains at its peak, albeit this would require a considerable increase in charges from RIIO-3 onwards; and
- Third-party entities who purchase assets for repurposing into hydrogen or Carbon Capture, Utilisation and Storage (CCUS) applications.

10.8 While recognising that government policy can change, Ofgem bases decisions on the current stated government position and how that flows into Ofgem's remit. Our price controls need to be financeable in their own right. On this basis, Ofgem must plan to recoup the costs from current and future consumers, and to protect consumers this may mean there is merit in leaving some optionality for transfers of repurposable assets to third parties.

10.9 Our policy aims in this context are to ensure that:

- Consumers tomorrow do not pay a significantly higher charge for deriving materially the same value from their use of the gas network (ie. our policy promotes fairness between current and future consumers); and
- Consumers today pay no more than is necessary (ie. to avoid having to compensate for any misperception of asset stranding risk in the weighted average cost of capital (WACC)).

- 10.10 We are therefore considering the appropriate rate of, and asset lives for, regulatory depreciation as a tool to try to achieve both policy aims. At this stage we are only presenting our initial analysis of the potential issues and implications of not changing from the status quo. We welcome views and evidence on this matter which we will take into consideration for taking a decision through the Sector Specific Methodology Decision (SSMD).
- 10.11 We recognise that the macro challenges, and potential tools for addressing those challenges alluded to above could place considerable upwards pressure on consumer bills from the start of the RIIO-3 period. This may be necessary, and consistent, with our principal statutory objective to protect the interests of existing and future consumers, which will imminently include a net zero duty. We will maintain a close view on bill impact throughout the price control setting process.
- 10.12 We also believe that it is prudent to pre-empt potential impacts on financial resilience that the macro challenges pose to the electricity transmission and gas sectors, respectively. We define financial resilience as licensees having sufficient financial safeguards or headroom so that they can avoid and/or manage the risk of financial distress or failure if there is a downside shock. For the electricity transmission sector, we consider that the increased importance of delivering the network investment to consumer outcomes and the government's ability to achieve net zero means that consumers and wider society stand to face greater loss if poor financial resilience is a material reason for non-delivery or late delivery. For gas, if RAV is returned more quickly this could create implications for financial resilience if licensees do not reduce indebtedness in broadly the same proportion to RAV returned as existing gearing levels. We maintain the view that we expect companies to manage their own financial risks and for shareholders to directly gain or lose as a consequence of their choices. However, we need to consider measures which provide clearer early warning signs and more incentives for company management and investors to act in financially responsible ways in the event of financial deterioration, whilst minimising the impact on companies which are financially resilient.
- 10.13 In this annex we describe and seek views on our proposed approach to setting a number of financial parameters, including:
- allowed return on debt;
 - allowed return on equity;
 - our approach to financeability;

- our approach to corporation tax;
- regulatory depreciation and economic asset lives; and
- a number of other finance issues.

10.14 At this stage we focus the discussion on principles, policies and methodologies, rather than numerical assumptions or other figures. We are keeping options open but have provided meaningful levels of detail for stakeholders on our preferred options. Following consideration of responses and any other evidence received, we intend to provide an early view on the cost of capital, amongst other parameters, at SSMD.

11. Cyber Security

Introduction

- 11.1 Network companies are reliant on interconnected technologies and systems to deliver essential energy and services to consumers. This reliance will increase as networks become smarter, more automated and more digitised in the drive towards net zero.
- 11.2 Cyber-attacks can impact the integrity and availability of operational technology and information technology. Network companies must ensure systems are adequately protected to detect and prevent cyber-attacks.
- 11.3 The Network and Information Systems Regulations 2018 (NIS Regulations) require network companies to take appropriate and proportionate cyber security measures to manage the risks posed to the security of their network and information systems. It also designates Ofgem and DESNZ as the joint Competent Authority (CA) for the electricity and downstream gas sectors in GB.
- 11.4 To assist network companies in achieving compliance with the NIS Regulations, the National Cyber Security Centre (NCSC) developed a cross sector Cyber Assessment Framework (CAF), published in 2018. Under the CAF, network companies perform a self-assessment and identify cyber security measures that should be implemented to ensure compliance with the NIS Regulations.

RIIO-2 approach

- 11.5 The cyber resilience framework for RIIO-2 consists of four components, summarised below:
- cyber resilience Information Technology (IT) and Operational Technology (OT) Plans;
 - baseline allowances and a UIOLI allowance to fund the delivery of cyber resilience IT and OT Plans;
 - two separate re-openers to fund additional IT and OT activities, with re-opener windows in 2021 and 2023 respectively, including the option for an Authority triggered re-opener; and
 - PCDs to track the delivery of IT and OT activities.

IT and OT Plans

11.6 In our RIIO-2 SSMD, we said that as part of their RIIO-2 business plans, network companies should include a:

- business IT security plan - focussed primarily on enhancing the IT security of their business systems;⁴⁵ and
- cyber resilience OT plan - focussed primarily on enhancing the resilience of their OT systems.⁴⁶

11.7 We said that both plans should set out efficient, appropriate and proportionate measures that the network company needs to deliver to enhance the security and resilience of their systems and networks and ensure compliance with the NIS Regulations.

Re-openers

11.8 We recognised that some network companies would not be ready to submit their cyber resilience OT plans by December 2019 and/or would require further guidance and time to clarify their needs. This was because the CAF was only published in 2018 (with multiple versions being released throughout 2018 and 2019), and this document was key to informing network companies' plans.

11.9 We also recognised that cyber security is an evolving and dynamic area. The need for further work could materialise in the event of changes to the cyber threat landscape, government policy or guidance.

11.10 Therefore, we established a re-opener mechanism with two windows in April 2021 and January 2023 respectively. We said that network companies could request additional funding through these windows if they were unable to submit their cyber resilience OT plans by December 2019, or in the event of any changes to the regulatory and/or cyber threat landscape during RIIO-2.

11.11 In May 2023, we created two additional re-opener windows for cyber IT and OT: October 2023 (for ET) and January 2024 (for GT and GD). This was to enable the network companies to submit updated IT and OT plans to reflect a change in policy which requires them to meet to improve resilience further during RIIO-3.

⁴⁵ IT means a licensee's information technology network and information systems that relate to the use of computers, software, hardware, and other devices to perform business operations.

⁴⁶ OT means a licensee's operational technology network and information systems that interface with physical assets and processes of operations.

11.12 We did not implement a materiality threshold for these re-openers. This was to ensure consistency with other resilience-based re-openers, where network companies are expected to implement government recommendations or guidelines.

Allowances

11.13 We said that we would set baseline allowances for network companies to deliver their business IT security plan. This would be subject to the TIM as network companies have historically invested to develop capability to mitigate IT cyber security risks. We considered this approach would incentivise network companies to maintain cyber security for their business systems in an efficient manner.

11.14 We provided network companies with a UIOLI allowance to deliver their cyber resilience OT plans. We considered this appropriate given the relative uncertainty around the scope and cost of security enhancements that may be required.

PCDs

11.15 We packaged the projects included in network companies' business IT security plans and cyber resilience OT plans as individual PCDs subject to ongoing monitoring through reporting every six months. This was then updated to annual reporting in February 2023.

11.16 Our rationale for doing this was to create a clear audit trail through which we could monitor network companies' progress in attaining compliance with the NIS Regulations, project delivery and allowance spend.

Cyber resilience guidance documents

11.17 In addition to the NIS Regulations and the CAF, there are numerous cyber security frameworks and guidance documents, published by Ofgem and wider government bodies. In RIIO-2 alone, we issued the following documents:

- NIS Supplementary Guidance and CAF Overlay for Downstream Gas and Electricity (DGE) Sector – issued as confidential to network companies on 01 August 2023;
- RIIO-2 Re-opener Guidance and Application Document - Cyber Resilience Re-opener Application Methodology and Requirements, published 17 February 2023;⁴⁷ and

⁴⁷ [Re-opener Guidance and Application Requirements Document: Version 3 | Ofgem](#)

- PCD Reporting Requirements and Methodology Document - Cyber Resilience IT and OT PCD Reporting Guidance, published 2 October 2023.⁴⁸

RIIO-2 lessons learned

Re-openers

11.18 In RIIO-2, we have found that network companies have interpreted the cyber resilience re-opener guidance differently which has led to notable variances in the quality, type and volume of re-opener applications submitted through the RIIO-2 re-opener windows. This variability has created a significant regulatory burden on both Ofgem and network companies. This is particularly pertinent to the cost information included in re-opener applications. The lack of consistency has limited our ability to benchmark and determine efficient costs.

11.19 In relation to the materiality threshold, we consider that the absence of a materiality threshold has allowed network companies to adjust their allowances to address emerging and evolving threats that have materialised within the price control period.

PCDs and reporting

11.20 In RIIO-2, we have set over 440 cyber resilience PCDs (across ET, GT and GD sectors). Whilst the associated reporting has enabled us to monitor delivery, allowance spend and progress in complying with the NIS Regulations, it has also resulted in significant regulatory reporting burden for us and network companies. We recognise that the RIIO-2 reporting is in addition to the mandatory reporting required under the NIS Regulations.

Our RIIO-3 proposals

11.21 Our objective for RIIO-3 is to build on the good progress made to date in RIIO-2 in complying with the NIS Regulations and to streamline this policy area where appropriate to reduce the regulatory burden.

Cyber resilience guidance documents

11.22 We recognise that navigating the landscape of cyber resilience guidance documents can be challenging for network companies. Therefore, we propose to:

- align the NIS Regulations obligations and RIIO Cyber expectations; and

⁴⁸ [Price Control Deliverable Reporting Requirements and Methodology Document | Ofgem](#)

- consolidate the Cyber Resilience Re-opener Guidance with the NIS Supplementary Guidance.

11.23 We consider that this will help network companies to submit compliance activities as part of their IT/OT Plans and re-opener applications.

IT and OT Plans

11.24 We propose that as part of their RIIO-3 Business Plan submissions, network companies should submit a:

- business IT security plan focussed on the investments that companies need to make to maintain the IT security of their business systems; and
- cyber resilience OT plan focussed on the investments that companies need to make to comply with or maintain compliance with the NIS Regulations.

11.25 We will set out further information on the scope of these plans in the Business Plan Guidance. We propose to standardise the information we receive in the IT and OT plans and intend to work with stakeholders after the SSMC to develop this.

Allowances

11.26 For RIIO-3, our ambition is to set baseline allowances for network companies to deliver their IT and OT Plans. Our rationale for this is as follows:

- as investment in this area matures and transitions to delivering business as usual activities, we want to encourage companies to deliver efficiently; and
- during RIIO-2 we have gathered cost data for delivering IT and OT activities. This may be sufficient to effectively benchmark costs submitted to us through BPDTs.

11.27 We recognise that investment in this area may not have matured sufficiently to set baseline allowances for cyber resilience OT activities. We would welcome your views on this, as well as the risks and benefits of our proposed approach.

11.28 In the event that we consider that there is uncertainty around cyber resilience OT activities and costs, we propose to retain our RIIO-2 approach and provide funding via a UIOLI allowance.

11.29 We propose that network companies should submit costs associated with their IT and OT plans, as part of their RIIO-3 BPDTs. We will work with network companies to develop the BPDTs and will publish them alongside the Business Plan Guidance.

PCDs and reporting

- 11.30 For RIIO-3, we want to reduce the number of PCDs that we set within the price control, whilst ensuring that we have sufficient oversight to ensure compliance with the NIS Regulations.
- 11.31 We consider that we can achieve this by aligning with our broader proposed RIIO-3 approach for setting PCDs (refer to paragraphs 6.37- 6.53 for more information). We propose that only material projects that directly deliver the CAF outcomes should be submitted as PCDs.
- 11.32 We consider that mapping PCD outcomes to the CAF (eg at the objective level, principle level or at the contributing outcome level) would support the closer alignment of RIIO to the NIS Regulations and enable the current and future NIS inspection regimes to support the RIIO-3 ex-post PCD assessment.

Re-openers

- 11.33 We recognise the need for a re-opener mechanism that network companies can use to adjust allowances in the event of changes to the cyber threat landscape, changes in government policy or guidance or the emergence of new technology capable of improving cyber resilience.
- 11.34 We are proposing to establish a broader resilience re-opener for RIIO-3 with a mid-period re-opener window (please refer to paragraphs 8.42 - 8.54 for more information). We consider that this approach will reduce the overall complexity of the RIIO-3 price control.
- 11.35 We propose that the mid-period re-opener also considers any additional cyber resilience funding requirements which may emerge from changes to government policy, guidance or the risk landscape during RIIO-3. Moreover, we also propose to retain the option for the Authority to direct new re-opener windows in RIIO-3.

Rationale for our RIIO-3 proposals

- 11.36 We consider that these proposals support our ambition to simplify and streamline this policy area, whilst maintaining our ability to ensure compliance with the NIS Regulations and respond to changes in the cyber-risk landscape.
- by consolidating our RIIO cyber resilience guidance documents, we want to clarify the types of cyber resilience activities and information that network companies should be including in their IT/OT Plans and re-opener applications;

- we consider that our proposal for network companies to submit IT/OT Plans and associated costs in BPDTs will help improve the consistency of information that we receive and allow us to benchmark costs for efficiency. This would also bring cyber resilience in line with our broader cost treatment approach for other resilience areas, such as physical security.
- our ambition to set baseline allowances for network companies to deliver their IT and OT Plans will encourage companies to deliver efficiently. However, if significant uncertainty remains around the required OT activities and investment, we will consider retaining the UIOLI mechanism. This would ensure that funding that is no longer required is returned to consumers.
- reducing the number of PCDs will in turn reduce the regulatory reporting burden across the price control. It will also reduce duplication with the NIS reporting process.
- establishing a re-opener mechanism for resilience costs (including cyber) will allow network companies to respond to changes in government policy, guidance or the cyber threat landscape.

OVQ46. Do you agree with our proposed approach to cyber resilience in RIIO-3?

12. Innovation

Introduction

- 12.1 Innovation is an essential part of how we expect energy networks to operate. To deliver a low-carbon energy system that is reliable, safe and efficient at a pace in line with our net zero targets, companies have to find new ways of developing and operating their networks. Innovation is essential to delivering these changes, and if done well, can provide an opportunity for the UK to position itself as a global leader in the energy transition.
- 12.2 This is why the RIIO framework locates innovation centrally within the work of energy networks, and rewards companies for reducing costs and improving service. This should drive companies to innovate and find more efficient and better ways of achieving the outputs and outcomes that their customers expect. The importance of innovation is reflected in the government's target for total research and development spending to reach 2.4% of GDP by 2027⁴⁹.
- 12.3 Network companies are natural monopolies with little competitive pressure and have low incentives to invest in innovation projects that are risky or have longer payback periods (ie beyond the 5-year price control period). This is a particular concern given the current context in which the scale and pace of change needed across the energy system to achieve net zero requires networks to tackle substantive challenges related to how they develop and operate their assets, engage their customers, and plan for the future.
- 12.4 We therefore consider that innovation funding and support are needed to ensure adequate resources are allocated to support network innovation.

RIIO-2 innovation stimulus

- 12.5 RIIO-2 provides two main innovation stimuli to support trials and encourage a culture of innovation.
- Network Innovation Allowance (NIA)⁵⁰: an upfront award that each RIIO network licensee receives (total of £278m across all RIIO-2 licensees). Licensees make the decisions as to which innovation projects they take forward with their NIA, in accordance with the NIA Governance Document⁵¹. In RIIO-2 the NIA provides funding for networks to deliver projects that have

⁴⁹ [Government announces plans for largest ever R&D budget - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/government-announces-plans-for-largest-ever-r-d-budget)

⁵⁰ [Network Innovation Allowance \(RIIO-2\) | Ofgem](#)

⁵¹ [RIIO-2 NIA Governance Document update | Ofgem](#)

the potential to address consumer vulnerability and/or deliver longer-term financial and environment benefits for consumers, which they would not undertake within the price control.

- Strategic Innovation Fund (SIF)⁵²: this is a competition-based fund that aims to find and fund ambitious, innovative projects with the potential to accelerate the transition to net zero. Network licensees partner with a consortium to apply for funding, with funding available in accordance with the SIF Governance Document⁵³. The SIF utilises annual rounds of phased funding, with roughly £450m available across RIIO-2, and Challenges⁵⁴ for each round to set direction to the market. The phases⁵⁵ are Discovery (feasibility studies, <£150,000 for 2-3 month project), Alpha (experimental development, <£500,000 for 6 month project), and Beta (build, operational and/or demonstration, no upper cost cap and up to 5 years).

12.6 We recently undertook an internal review of the SIF, gathering industry and Ofgem expert feedback. This review indicated that the SIF is delivering on the core aims that it was established to achieve. As part of this review evaluation teams from Ofgem and our delivery partner Innovate UK (IUK) led an analysis of Cost Benefit Analyses submitted by network companies running 10 Round 1 Beta projects. These show that against the £95m committed so far, there was a projection of the SIF creating £5 billion of financial benefits by 2035, with 28,423 TCO2 emissions saved by 2035. We consider these numbers to be ambitious and that in reality not all projects will be successful, and applicants are likely to be optimistic in their projections. To address this, Ofgem has committed to raise the quality of submitted CBAs. However, these provisional numbers provide confidence that if SIF projects are fully supported in their delivery, the benefits of the programme will significantly outweigh the costs.

12.7 We have also undertaken extensive informal engagement with network companies to gather their feedback on the operation of the NIA and the SIF, as well as an internal review of the NIA and the SIF with Ofgem subject matter experts. Key takeaways include:

- Network companies told us that the flexibility provided by the NIA allows for agile project delivery and resource planning. It has enabled lower budget and

⁵² [Strategic Innovation Fund \(SIF\) | Ofgem](#)

⁵³ [Updated SIF Governance Document | Ofgem](#)

⁵⁴ [Updated SIF Governance Document | Ofgem](#), 1.10-1.12

⁵⁵ [Updated SIF Governance Document | Ofgem](#), 1.13-1.19

early-stage innovation projects, including with third parties such as small-medium enterprise (SME) innovators.

- The SIF enables Ofgem to set clear direction and focus the attention of network companies on SIF Challenges that we identify with IUK through extensive stakeholder engagement. The scale and reach of the SIF have ensured that the wider market is highly engaged in solving these challenges, with early evidence suggesting that it leads to projects of a high quality. Projects are well monitored and supported by IUK.

12.8 We are therefore considering retaining a financial innovation stimulus package, limited to projects that might not otherwise be delivered under the core RIIO-3 framework.

Case for change

12.9 Our ambitions for clean power by 2035 and net zero by 2050 will require further innovation delivered faster than before. Challenges networks need to address in the next price control period include:

- increasing electrification;
- changing patterns of demand and generation;
- increasingly complex system management;
- the expansion of storage and cross-vector energy supply;
- exploration of the role of hydrogen; and
- decommissioning of gas networks.

12.10 To meet these challenges, we expect network companies will need to deliver both incremental and transformational innovation. We believe that the current innovation package needs reform to meet those ambitions. Issues we have observed and have received feedback on include:

- the way that NIA and SIF operate is not as simple and streamlined as it could be;
- network companies play a key role in assessing and then partnering with third party companies who have developed innovative solutions, but we want to ensure that the best innovations are deployed on the networks regardless of who creates them, and avoid network companies becoming a bottleneck in the process;

- we are not convinced that innovation is consistently shared, rolled out and deployed across networks, which is an issue we have observed across multiple price controls;
- we're mindful that the nature of 5-year price controls could disincentivise network companies from embarking on transformational innovations for which they are unlikely to see rewards within the same price control period; and
- the current rulebook governing network activities may need to evolve to remain fit for purpose and avoid becoming a barrier to transformational innovations.

12.11 As a result of this, we believe that aspects of the current innovation stimulus are in need of reform. We seek stakeholder views on the following potential changes.

Our proposed approach for RIIO-3

12.12 We expect network companies to continue to fund lower-risk operational and maintenance innovation projects as part of their business as usual activities. Incentives already exist for companies to undertake this type of innovation through their base revenues. The totex incentive mechanism will ensure that companies will continue to share the benefits of these innovations.

12.13 In their Business Plans, we expect companies to demonstrate how they will apply innovation to their business as usual activities, and what the consequential impact might be on their future expenditure requirements.

12.14 We are considering a number of reforms to the existing RIIO innovation package to support energy sector innovation to deliver net zero at low costs to consumers. The rationale for each is detailed in the respective sections below.

Reforming the structure of innovation funding

12.15 The NIA is an upfront award that each RIIO network licensee receives. Networks and bodies such as the Energy Innovation Centre have reported that the NIA has significant benefits when compared with the SIF – in particular, that its accessibility allows licensees to better plan for the resourcing of their innovation teams, and that its flexibility and continuous nature has enabled third parties to get involved in network innovation. Networks have also fed back that it allows them to explore innovations that do not need a large demonstrator, so would not be relevant to the SIF.

12.16 However, we are concerned that it has been spent on projects that either should have been delivered within business as usual, or that are duplicative of existing

work. We are also concerned that there may be overlap of what NIA and SIF are used for – there is scope for double-funding and inefficiency, with a lack of clarity on which mechanisms to use. Finally, we are concerned that NIA, due to the previously mentioned flexibility and ease of use, may be creating a disincentive to apply for the SIF as networks focus resources on NIA projects.

12.17 We introduced the requirement for networks to report the benefits of NIA projects in the Innovation Measurement Framework, and for all projects to be reported on the ENA's Smart Networks Portal. However, we remain concerned that there is an evidence gap around the outputs of NIA projects.

12.18 As detailed above, in our assessment the quality of SIF projects is high, with significant potential benefits projected in the project CBAs. The SIF is also allowing us to set clear direction to the market on areas that we view as requiring innovation, and its phased structure is delivering its stated intention of de-risking larger scale projects.

12.19 However, networks have fed back that the Discovery phase has low return on the significant engagement required, with the application process overly burdensome and slow. It is reported that this makes it challenging for smaller SMEs to be part of SIF consortia.

12.20 Reflecting the high level of innovation funding that would be provided if we continue with two funds of a similar scale, it is essential that these schemes are non-duplicative, high value, and work for networks and innovators alike.

12.21 Our current position is that there is evidence in support of continuing with an allowance that networks can access flexibly, but there needs to be clearer demonstration of outputs in support of this position.

12.22 To address concerns around quality and duplication of funding, we are also exploring introducing a lean application and monitoring process for this early flexible funding. This would focus on:

- ensuring minimum standards of quality are met by checking that projects have in place clear project timelines, deliverables, milestones, resourcing, budget, consumer engagement plans where relevant, and that the projects are able to demonstrate that they could not be delivered within the core price control; and
- ensuring the impact of money spent on innovation projects is maximised by checking that projects have in place plans for how any solutions can be rolled out and ensuring that projects are not duplicative.

- 12.23 We envisage a lean, rapid review process that checks these plans are in place, ensuring that the allowance fund remains flexible, but increasing the quality of projects within it.
- 12.24 We are also of the view that there is evidence for a competition fund supporting risky, large-scale, transformative innovation. We think that this should remain a fund that is accessed via competition and assessed by Ofgem and external experts to ensure high quality projects that are aligned with the direction set by Ofgem. In theory, utilising a set-up of three phases of increasing increments of funding de-risks the investment for consumers. We are of the view that Alpha and Beta phases have delivered value but have had feedback that Discovery is overly burdensome to apply to, too short to fully develop ideas, and is operationally highly challenging to deliver useful projects within. We're therefore considering that any future competition fund would deliver most value by focusing on Alpha and Beta type projects.
- 12.25 A core aim of the SIF is to coordinate network innovation funding with other public sector funding initiatives, ensuring greater strategic alignment and eliminating funding gaps. To deliver this, we established the SIF to focus on whole system problems (such as the SIF Round 1 Challenges of Heat, Zero Emission Transport, Data and Digitalisation, and Whole System Integration). Despite some successes, there remain challenges with aligning SIF and wider funding. With an increasingly complex and interdependent energy system we are keen to explore further opportunities to take a whole system approach to energy funding and seek feedback from the market on the best way to do so.

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

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

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

Amount of innovation funding

- 12.26 Over the current 5-year RIIO-2 price control, networks receive £450m through SIF and £278m through NIA.

12.27 For RIIO-2 it was decided to set £450m for the SIF as this was equivalent to the funding that was provided via the RIIO-1 Network Innovation Competition⁵⁶, with the intention that this could be increased if necessary. This amount was not increased in the ED-2 Final Determinations, but the amount required remains under review as the SIF is delivered during RIIO-2. As previously discussed, the preliminary review of the SIF indicates that it represents good value for money.

12.28 There are arguments for expanding the total amount as:

- there is a case that the size of the net zero challenge facing us increases the urgency of investing now to deliver future benefits, while the total allotted has stayed the same for the NIC and SIF across two price controls;
- in this period inflation has reduced how far this amount of money can go to deliver innovation projects, with cost of capital and labour increasing significantly; and
- the proposed accelerator (described at paragraphs 12.34-12.37) would also likely increase the total cost of the competition fund.

12.29 However, it is important to balance these changes with their impact on consumer bills, as innovation funding is by nature risky and may not realise returns. We also believe there is scope for reducing duplication on what innovation funding is spent on and increasing collaboration between networks to make existing funds go further.

12.30 Reflecting these considerations, we are proposing to continue with a similar level of funding, unless significant evidence for an increase or decrease in funding is provided.

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

Increasing third party involvement

12.31 We have continuously sought to enable third-party engagement and direct access to innovation funding throughout RIIO-1 and RIIO-2. The 2016 Network Innovation Review identified the required changes associated with providing direct access. These included a requirement for primary legislation to enable

⁵⁶ [RIIO-2 Draft Determinations - Core Document \(ofgem.gov.uk\)](#), page 92

direct third-party access in addition to changes to the ongoing licence monitoring requirements.

12.32 In response to the challenge posed by a primary legislation change, but reflecting the desire to enable third-party and direct access in RIIO-2, steps were taken to try and facilitate third party involvement:

- For the NIA we introduced a requirement for network companies, and the ESO, to collaborate in producing guidance for third parties on the treatment of Intellectual Property Rights (IPRs) in the NIA. This was introduced to encourage third party involvement as the IPR arrangements can be seen as a barrier to partnering, due to their perceived complexity.
- For the SIF we utilised the Challenge documentation to impose requirements on third party involvements in projects where it is appropriate. We have also commissioned a piece of work by Regen to develop a 'Playbook' for innovators that identifies key factors that have been shown to influence the successful rollout of projects and to share learnings from previous innovators.

12.33 We have received feedback from networks and the Energy Innovation Centre that the NIA has a high level of third party and SME involvement. However, based on feedback from innovators, we are concerned that third parties such as SMEs are struggling to engage in SIF, and to a lesser extent NIA, and that network companies remain gatekeepers to potential innovations being deployed on their networks. They can block ideas on the basis that they don't offer returns, even if they will have positive consumer or climate impact. Networks may also not partner with third party innovators if the third party has not had financial support to fully develop a proposal that could apply for SIF funding.

12.34 We are considering addressing this by working with networks to establish an accelerator. This would directly support early-stage innovators who are working on promising solutions to network problems to develop their proposals, with the intention of improving the quality of applications reaching networks and ensure support for SMEs.

12.35 We envisage this as similar to Ofwat's 'Water Discovery Challenge'⁵⁷, which takes the form of a relatively small pot of money within their larger innovation fund⁵⁸ that third party innovators can apply to within a two-round competition. Successful applicants receive a combination of financial and non-financial support

⁵⁷ [Water Discovery Challenge - Ofwat Innovation Fund \(challenges.org\)](https://www.challenges.org/)

⁵⁸ [Ofwat Innovation Fund - Ofwat Innovation Fund \(challenges.org\)](https://www.challenges.org/)

to enable innovations to launch, and are then supported to seek larger amounts of funding.

12.36 While there are other accelerators in the energy innovation space, we believe that this proposal would not be duplicative as it would directly support innovators working on network-innovation challenges, who today receive no comparable support.

12.37 As this funding would be from the consumer levy, we envisage this accelerator being sponsored by network companies as a portion of money that can be allocated to them within the competition fund, with the intention of improving the quality and variety of projects that apply for Alpha and Beta-phase funding. To address concerns that this accelerator pot could lower the quantity of funding available to networks, the total amount of money available within the competition fund could be increased, provided the accelerator pot was perceived to represent good value for money for consumers.

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

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

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

Extending the time period over which returns from network innovation can be captured

12.38 As previously noted, five-year price controls and the associated resetting of allowances can discourage certain types of innovation. This is because increased expenditure on research and development can make companies look inefficient in the context of a five year price control period, if the activity takes longer than five years to deliver and the cost of these activities does not deliver benefits within that period. We are also concerned that there may be a focus on safer, incremental innovation that aligns closely with existing business models, rather than the more transformative and riskier innovations that could drive significant change, but may be more challenging and costly to deliver. This issue is of particular concern towards the end of each price control, as few innovations will realise returns within one or two years.

12.39 We note that there are longer-term, strategic projects within the current SIF portfolio. For example, some Beta projects are scoped to take over four years to

be delivered. This indicates that this issue does not stop all longer-term innovation. However, in response to multiple stakeholders flagging this issue, we remain concerned that the five-year structure of the price control means that networks will not seek funding for innovations that could have a positive impact for consumers, limiting innovation to shorter-term projects, as well as those that may be lower risk projects.

12.40 We are therefore seeking evidence and examples from networks of projects that have not been undertaken due to five-year price control windows. If there is strong evidence that this is having a negative impact on innovation outcomes, we are open to exploring whether networks and their delivery partners could keep returns from funded innovation projects for longer than is currently allowed within the five-year price control period.

OVQ54. Do you have evidence of potential innovation projects that have not been implemented or sought funding due to the five-year structure of the price control? How could this issue be addressed?

Utilising the regulatory sandbox to allow networks to innovate

12.41 Innovation takes place within the regulatory framework set by Ofgem, for example in the form of licence conditions, as well as industry's own rules in the form of technical codes. As operations and technologies change, these rules need to be updated to respond to and enable innovation and continue to ensure good consumer outcomes.

12.42 Since 2017, we have offered the Energy Regulation Sandbox (ERS) which can provide energy innovators with relief from rules where they wish to trial or launch a new proposition. However, only one network company has applied for a Sandbox, and no SIF-funded project has required a Sandbox thus far. This suggests that network companies are not pushing the boundaries of innovation far enough, as truly transformative innovation would likely require changes to existing rules.

12.43 Building on the ERS, Ofgem has recently published a call for input⁵⁹ on the introduction of a new Future Regulation Sandbox (FRS), an innovative policy instrument to test and trial changes to the energy rulebook before making them. The FRS would operate within live markets but provide a contained environment to conduct controlled testing of potential future regulation. This Sandbox

⁵⁹ <https://www.ofgem.gov.uk/publications/proposal-introduce-future-regulation-sandbox>

environment would limit risk to consumers, systems and markets, whilst providing a rich evidence base to inform decisions about how the rulebook should evolve.

- 12.44 We are considering utilising the FRS as a tool to proactively review regulation to enable or respond to key innovations, trends and changes in the energy market, to ensure rules are fit for purpose to deliver low-carbon energy networks at least cost to consumers. The initiative for and design of any given FRS will be led by Ofgem (informed by stakeholder appetite and input). This approach to trialling future regulation has been successfully used by several regulators in other countries. Our call for input contains a case study of the Italian energy regulator and several use-case examples.
- 12.45 Such trials could receive funding through the NIA or the SIF, provided they meet eligibility criteria of those funding mechanisms. We will also consider how such trials could be built into the price control. For example, if the details and financial requirements of a trial were known before the start of the RIIO-3 period, allowances could be determined and built into the settlement. Alternatively, we could consider a re-opener to allow companies taking part in a trial to recover appropriate costs during the price control period. We are keen to hear from stakeholders whether they see potential in this proposal, and if so, what issues future regulation sandbox trials should focus on.

OVQ55. Do you agree with our proposal to run FRS trials with an explicit focus on informing changes to the rules governing energy network activities – incentivised through SIF or other price control mechanisms?

OVQ56. What topics could FRS trials usefully focus on and why?

Ensuring that a high rate of innovation projects are rolled out quickly, providing savings for consumers and reductions in CO2 emissions

- 12.46 During RIIO-1, the Innovation Rollout Mechanism (IRM) was utilised to provide an incentive for networks to rollout innovations that had been tested. For RIIO-2 it was decided that the IRM would be discontinued, as there had only been two successful applications. Moreover, it was felt that as network companies would continue to benefit through the TIM from roll-out of proven innovations, their baseline revenues should be sufficient to fund the roll-out.
- 12.47 We are aware that not all funded projects will be rolled out. Innovation projects are risky, and even well planned and delivered projects may not lead to roll-out. However, following recent analysis of NIA and NIC fund outputs we remain

concerned around the low levels of roll-out of projects that had received innovation funding.

12.48 To address this within the SIF, we commissioned the 'Playbook' work led by IUK and Regen that identifies key factors that have been shown to influence the successful roll-out of projects, including by sharing learnings from previous innovators. This work identified varied views on how best to deliver high levels of innovation roll-out. We want further, more formalised and evidenced feedback from the industry on why they view there to be challenges in rolling out projects.

12.49 Alongside this, if a strong evidence base is provided for why these challenges persist that makes the case for change, we are open to exploring mechanisms that could be introduced to better incentivise roll-out of funded projects. Reflecting the wide-ranging comments we have heard around the blockers to innovation funding roll-out, we are open to a wide range of options to address potential blockers. These options are listed below, but we are also open to proposals that we may receive in response to this consultation:

- Late-stage incentive for demonstrator projects tied to successful demonstration of business as usual implementation: successful large-scale projects could apply for this incentive, or alternatively this could be structured as a final tranche of funding that can be allocated within a demonstrator project, provided certain outcomes and standards have been met at the final stage gate. We are seeking feedback, in particular, on how such an incentive could be structured so as to deliver roll-outs more successfully than the IRM.
- A roll-out allowance: licensees are given an allowance annually eg a percentage of their revenue that can be accessed to roll-out transformational innovation at scale. Successful demonstrator projects will be able to draw from this allowance, provided certain outcomes and standards have been met. The allowance removes financial risk of material transformation for the network, without overly de-risking the wider business transformation, as that operational risk should be for them to navigate.
- Penalties: the option of clawing back innovation funds or applying a penalty to those companies who are not able to demonstrate successful roll-out of at least a proportion of their funded projects, if we view that there is a sufficiently high consumer benefits case in favour of roll-out.
- Performance based incentives: the introduction of a system where rewards are introduced based on the actual performance and impact of an innovation, once it is rolled out. These rewards would be allocated to reward past

performance in accordance with established criteria, with a review system and success criteria established to allow licensees and their partners to focus their work on delivering outputs that meet criteria. This could ensure that the focus is on delivering the tangible benefits of projects to consumers and the energy system.

12.50 We welcome feedback on what are the challenges to roll out innovation funded projects, as well as feedback on each of these potential pathways to enable a higher proportion of projects being rolled out.

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

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

13. Data and digitalisation

Introduction

- 13.1 Digitalisation means improving the way we use data and digital technologies to generate value for consumers.
- 13.2 The future energy system will require higher quality and more easily accessible data than is currently available. This is because the management of capacity across networks, the proliferation of millions of distributed assets, the interconnected nature of different systems and operators, and the need for decentralised flexibility requires reliable and standardised data transfer to operate effectively. The government's Smart Systems and Flexibility Plan recognised data and digitalisation as essential for realising a smart and flexible energy system.⁶⁰ In its most recent carbon budget, the CCC also described digitalisation as 'fundamental to the operation of a net zero economy'.⁶¹
- 13.3 In 2021, Ofgem and government published a joint Energy Digitalisation Strategy,⁶² committing to a series of actions to support the digitalisation of the energy sector. This built on previous work by the independent Energy Data Taskforce.⁶³ To meet these actions, we introduced licence obligations in RIIO-2 requiring networks to consult on and publish Digitalisation Strategies and Action Plans (DSAPs) and comply with Data Best Practice (DBP).⁶⁴ We are committed to further digitalisation of the energy sector and unlocking the value of both consumer data and energy system data and will be continuing this line of work in RIIO-3.

Ofgem's approach to digitalisation

- 13.4 Ofgem currently has three key workstreams in progress on digitalisation. These are Consumer Consent (CC), Data Sharing Infrastructure (DSI), and DBP. Respectively, these address the need for smart meter data, system data, and the standardisation of data. A summary of key workstream deliverables is shown in **Error! Reference source not found..**

⁶⁰ [Transitioning to a net zero energy system: Smart Systems and Flexibility Plan 2021 \(publishing.service.gov.uk\)](#)

⁶¹ [Sixth Carbon Budget - Climate Change Committee \(theccc.org.uk\)](#)

⁶² [Digitalising our energy system for net zero: strategy and action plan 2021 \(publishing.service.gov.uk\)](#)

⁶³ [Energy Data Taskforce | A Modern Digitalised Energy System \(catapult.org.uk\)](#)

⁶⁴ See also: [Decision on updates to Data Best Practice Guidance and Digitalisation Strategy and Action Plan Guidance | Ofgem](#)

Table 7: Summary of digitalisation workstreams

Workstream	Current focus & future dates
CC	CFI on consent process options (currently open). Consultation on chosen option, Spring 2024.
DSI	Consultation on governance model, Spring 2024. Development of MVP.
DBP	Expansion of DBP. DNOs publish aggregated smart meter data, Spring 2024 or earlier.

- 13.5 The end goal of CC is to give consumers the ability to share their energy data securely with trusted market participants who can provide them with energy services to lower their bills as well as their carbon footprint. We recently published a Call for Input (CFI) to gather industry views on options for a new consent process, which closes for respondents on 26 January 2024.⁶⁵ We are also engaging with RECCo⁶⁶ on key consent issues. Our future plans are to build on this CFI with a consultation on the proposed consent process option in Spring 2024, followed by delivery of the option decided upon. We will also consult on any necessary code modifications and licence changes.
- 13.6 DSI is a means to facilitate the secure, trusted, and efficient exchange of data between different systems, organisations, or entities. This in turn enables greater collaboration and innovation across the energy sector. In the Framework Decision we decided to support the industry by developing the pathway for delivering DSI.⁶⁷ This is being developed through the funding of a MVP with networks, and a planned consultation for Spring 2024 on governance models for DSI.
- 13.7 DBP represents Ofgem’s intent to create underpinning principles for the treatment of data across the energy sector, necessary to create interoperability and maximise the value of data. Ofgem is working on putting these principles into practice through reviewing and providing guidance to networks on regularly updated DSAPs.⁶⁸ Ofgem intends to expand the scope of DBP to other licensees

⁶⁵ [Data Sharing in a Digital Future | Ofgem](#)

⁶⁶ Retail Energy Code Company

⁶⁷ [Future Systems and Network Regulation: Framework Decision Overview \(ofgem.gov.uk\)](#)

⁶⁸ A decision to update guidance on DBP and DSAPs was made in August 2023; [Decision on updates to Data Best Practice Guidance and Digitalisation Strategy and Action Plan Guidance | Ofgem](#)

such as code bodies, and to ensure that DNOs publish aggregated smart meter data by Spring 2024.

Data Sharing Infrastructure and RIIO-3

- 13.8 In the context of our Framework Decision to develop the pathway for delivering DSI, we consider that this will mainly entail supporting the development of an MVP. Note that this work is separate from our development of a governance model for DSI ahead of a consultation in Spring 2024.
- 13.9 DSI can facilitate the secure and efficient exchange of data. Access to up-to-date information held by network companies on assets can enable a more streamlined RIIO process (for example through enabling more flexible mechanisms) and provide Ofgem with the best possible data to inform its actions. Accordingly, we identified an exchange mechanism between Ofgem and network companies for this data as a key use case for a DSI MVP. We propose that network companies will be required to participate in this mechanism once operational. We will be working with industry to develop and understand additional use cases for a DSI MVP.
- 13.10 In response to our Framework Consultation,⁶⁹ network and non-network stakeholders noted that network companies need to increase their capacity and capability to exploit faster data transfer and greater data availability. We recognise that to do this will require investment and are taking this into account for RIIO-3 and considering whether additional funding is also needed in RIIO-2. This will be taken in balance with the already substantial funding that networks have received through RIIO-2.

Modernising regulatory reporting

- 13.11 We are setting the ambition to remove our reliance on excel-based transmission of regulatory data and implement new reporting systems to improve data quality and ensure that we can effectively and efficiently monitor whether consumers are getting value for money during the transition to net zero. We think that by modernising the regulatory reporting through an accessible, easy-to-use product there will be opportunities for:

⁶⁹ [Consultation on frameworks for future systems and network regulation: enabling an energy system for the future | Ofgem](#)

- streamlining price control operations, with a reduced administrative burden and more direct and timely use of network company performance data;
- improving the accessibility of network company performance information, allowing Ofgem as well as government, consumer bodies, and other key stakeholders the ability to better scrutinise and hold network companies to account; and
- better leveraging the power of reputational and behavioural incentives to drive higher service standards across the areas that matter most to consumers.

13.12 RIIO-3 business plans will be submitted using the "traditional" form of data template but will serve as the starting point for transformation.

13.13 Therefore, we are proposing a digital change workstream with broadly the following initial milestones:

- Initial phase - Ofgem internal focused (Jan - June 2024): We will ensure our digital infrastructure can accommodate new means of data sharing and storage, and develop draft data models to propose to networks;
- Kick-off (second half of 2024). Initial sharing of ideas based and feedback from business plan data template development; and
- External engagement phase (from January 2025): Working groups commence using the business plan data templates as a starting point. We will seek opportunities to improve efficiency through an external discovery.

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

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

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

13.14 Note that we will also be publishing a consultation on governance models for DSI in Spring 2024. In addition to the specific consultation questions above, if you have any views or comments on digitalisation policy more broadly, please contact digitalisation@ofgem.gov.uk.

Appendix 1 Privacy notice on consultations

Personal data

The following explains your rights and gives you the information you are entitled to under the General Data Protection Regulation (GDPR).

Note that this section only refers to your personal data (your name address and anything that could be used to identify you personally) not the content of your response to the consultation.

1. The identity of the controller and contact details of our Data Protection Officer

The Gas and Electricity Markets Authority is the controller, (for ease of reference, "Ofgem"). The Data Protection Officer can be contacted at dpo@ofgem.gov.uk

2. Why we are collecting your personal data

Your personal data is being collected as an essential part of the consultation process, so that we can contact you regarding your response and for statistical purposes. We may also use it to contact you about related matters.

3. Our legal basis for processing your personal data

As a public authority, the GDPR makes provision for Ofgem to process personal data as necessary for the effective performance of a task carried out in the public interest. ie a consultation.

4. With whom we will be sharing your personal data

We will not share your personal data with any other person or organisation.

5. For how long we will keep your personal data, or criteria used to determine the retention period.

Your personal data will be held for 12 months after the project has closed.

6. Your rights

The data we are collecting is your personal data, and you have considerable say over what happens to it. You have the right to:

- know how we use your personal data
- access your personal data
- have personal data corrected if it is inaccurate or incomplete
- ask us to delete personal data when we no longer need it

- ask us to restrict how we process your data
- get your data from us and re-use it across other services
- object to certain ways we use your data
- be safeguarded against risks where decisions based on your data are taken entirely automatically
- tell us if we can share your information with 3rd parties
- tell us your preferred frequency, content and format of our communications with you
- to lodge a complaint with the independent Information Commissioner (ICO) if you think we are not handling your data fairly or in accordance with the law. You can contact the ICO at <https://ico.org.uk/>, or telephone 0303 123 1113.

7. Your personal data will not be sent overseas

8. Your personal data will not be used for any automated decision making.

9. Your personal data will be stored in a secure government IT system.

10. More information For more information on how Ofgem processes your data, click on the link to our "[ofgem privacy promise](#)"

Appendix 2 Consultation Questions

Future of Gas

- OVQ1. Do you agree with our proposal for how RIIO-3 should interact with the Hydrogen Transport Business Model?
- OVQ2. Are there any additional activities relating to the development of hydrogen transport infrastructure, or repurposing of natural gas assets, that you think should be funded through RIIO-3, and if so, why do you think this is justified?
- OVQ3. Do you agree with the proposal that network costs relating to hydrogen blending at both distribution and transmission level should be included in RIIO-3 net zero related UMs? If so, which mechanism do you think is most appropriate for these costs and why?
- OVQ4. What are your views on the proposal of using the GD specific Heat Policy re-opener, the RIIO-3 net zero related UMs, or a mixture of both to fund network costs incurred as a result of the government's 2026 decision on hydrogen for heating (where RIIO is deemed to be the most appropriate funding mechanism for these costs)?
- OVQ5. What are your views on our proposal to not enable funding for further evidence relating to repurposing the existing network for hydrogen heating ahead of government's decision on hydrogen heating in 2026?
- OVQ6. Should RIIO-3 help to manage future gas network decommissioning costs? If so, do you have views on what these costs could be and what mechanisms should be used, including for anticipatory funding?

Role of Scenarios and Planning Pathways

- OVQ7. Do you agree with the proposal to use the FES framework for selecting the RIIO-3 scenarios?
- OVQ8. Do you agree with the proposal to use FES Leading the Way as the planning scenario for ET in RIIO-3?
- OVQ9. Do you agree with the proposal to use two FES planning pathways for the gas networks, ie Leading the Way and Falling Short as the additional common conservative scenario?

OVQ10. Is Falling Short the most appropriate common conservative planning scenario to be used for the gas networks? Or is a common gas network developed scenario more appropriate?

OVQ11. Is it feasible for all network companies to initially plan against FES 2023 before updating business plans in line with FES 2024, as proposed?

Outputs and Incentives

OVQ12. Do you agree with our proposed approach on the role, scope and format of PCDs?

OVQ13. Do you agree with our proposed framework for setting financial incentives? Are there any additional considerations that we should take into account?

OVQ14. Do you agree with our approach to setting reputational incentives? Are there any additional considerations that we should take into account?

OVQ15. Do you agree with our proposals for bespoke outputs? Are there any additional considerations that we should take into account?

OVQ16. Do you agree with our proposal to retain the EAPs and AERs in RIIO-3? Please provide reasonings for your position.

OVQ17. What are your views on the new proposed AER format with Commentary and KPIs?

OVQ18. Do you agree with our minded-to position of retaining the reputational incentive on TOs and GDNs for reducing their BCF?

OVQ19. Are there any other suggestions you would like to make regarding reporting standards?

OVQ20. Do you agree with our minded-to position to withdraw the Environmental Scorecard and incentivise improvements in environmental impacts through the Annual Environmental Report (AER)? Please explain your reasoning.

OVQ21. Do you consider that there are other areas which require financial incentives which cannot be captured by the AER? Please explain your reasoning.

OVQ22. Do you have any views on our proposals for the NARM framework?

- OVQ23. Do you have any views on our proposed long-term approach to embedding climate resilience, including the principles for embedding climate resilience?
- OVQ24. Are there any early learnings we should be aware of/incorporate to make progress on this in RIIO-3 or beyond?
- OVQ25. Do you agree with our suggested approach for embedding climate resilience into RIIO3, namely: introducing resilience strategies; developing forward-looking resilience metrics; and introducing climate resilience working groups?
- OVQ26. Do you agree with the proposals that we have set out around the resilience metric?
- OVQ27. Do you agree with our proposals on workforce resilience?

Truth Telling and Efficiency Incentives

- OVQ28. Do you agree with our proposed key objectives for truth telling and efficiency incentives?
- OVQ29. What are your thoughts on our proposals relating to minimum requirements under an evolved BPI approach?
- OVQ30. What are your thoughts on an 'in the round' assessment of cost forecasts as opposed to a high/lower confidence breakdown and assessment?
- OVQ31. What are your thoughts on an 'in the round' assessment of business plan ambition as opposed to requiring and assessing CVPs?
- OVQ32. What are your thoughts on the size and strength of any truth telling incentive?
- OVQ33. What are your thoughts on any alternative approaches that could be used instead of an evolved BPI?
- OVQ34. What are your thoughts on the options for calculating the sharing factors and do you see strong reasons for changing the overall strength of the sharing factors relative to RIIO-2?

Managing Uncertainty

- OVQ35. Do you agree with our proposal to retain the Net Zero Re-opener with its current scope and parameters for RIIO-3?

- OVQ36. What are your views on our proposal, in principle, to retain the Net Zero and Re-opener Development Fund UIOLI for RIIO-3? What are your views on the types of projects it could fund and how it would interact with other sector specific price control mechanisms?
- OVQ37. Do you think we should retain the NZASP for GD and GT? What should its scope be and what kind of projects would you expect to be funded through this re-opener in RIIO-3?
- OVQ38. Do you have any views on consolidating the net zero related re-openers and the UIOLI allowance?
- OVQ39. Do you agree with our proposed position to retain the Coordinated Adjustment Mechanism for RIIO-3? If it were to be retained, what design and incentive considerations could we implement to enhance the utilisation and value of this mechanism?
- OVQ40. Do you agree with our proposal to allow physical security costs to be submitted through a broader resilience re-opener?
- OVQ41. Do you agree with our proposed approach to introduce a resilience re-opener?
- OVQ42. Do you have any views on whether the opex escalator should be retained and if so, how we could evolve the opex escalator for RIIO-3?
- OVQ43. Do you have any views on how we should effectively monitor the delivery of UMs?

Cost of Service

- OVQ44. Do you have any views on whether to evolve the RIIO-2 methodologies for RPEs and ongoing efficiency for RIIO-3, and if so how?
- OVQ45. Do you have any views on the potential application of RPEs and ongoing efficiency to re-opener applications?

Cyber Security

- OVQ46. Do you agree with our proposed approach to cyber resilience in RIIO-3?

Innovation

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

- OVQ48. Do you have any views on our proposal to retain a competitive network innovation funding pot, that continues to focus on key challenges facing the energy sector, with phases to de-risk the pot?
- OVQ49. Do you have any views on how the structure of the price control innovation funding could be adapted to better focus on whole systems problems, and ensure strategic alignment with other public sector initiatives?
- OVQ50. Do you agree with our proposal to continue with a similar level of innovation funding, and if not, could you provide evidence for why a different amount is required, including consumer research you are aware of into their willingness to pay for network innovation?
- OVQ51. Do you agree there is a need to expand the scope of innovation funding to be more inclusive of third parties?
- OVQ52. What are your views on us establishing an accelerator to support early-stage innovators?
- OVQ53. What are your views on our proposal for this to be a smaller part of a future challenge fund and to be sponsored by networks?
- OVQ54. Do you have evidence of potential innovation projects that have not been implemented or sought funding due to the five-year structure of the price control? How could this issue be addressed?
- OVQ55. Do you agree with our proposal to run FRS trials with an explicit focus on informing changes to the rules governing energy network activities – incentivised through SIF or other price control mechanisms?
- OVQ56. What topics could FRS trials usefully focus on and why?
- OVQ57. Do you have any feedback on the view that not enough network innovation funded projects have been rolled out, and can you share any evidence you have to support your position?
- OVQ58. What are your views on the design of potential new mechanisms to address this?

Data and digitalisation

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

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