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## **RIIO-2 Sector Specific Methodology**

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## Foreword



Great Britain's gas and electricity networks (and the operation of the energy system as a whole) are essential to the functioning of society and our economy. They move energy from where it is produced to homes, businesses and other premises across the country, and ensure a reliable supply wherever and whenever it is needed.

The cost of operating, maintaining and strengthening these networks is significant, currently averaging around £12.5 billion each year. These costs are ultimately reflected in energy bills. It is vital that all consumers, including those in vulnerable situations, can continue to rely on safe and secure energy at an affordable price.

We have learned lessons from how we have set the revenues for network companies in previous price control periods and are looking to achieve a better balance of risk and return in RIIO-2. This will involve a lower cost of financing these businesses alongside measures to flex the controls to respond to a range of future scenarios and to protect investors from risks that they are not well placed to manage. We will apply incentives on companies where appropriate, and facilitate innovation and competition to find new and better ways of achieving this at the most efficient cost.

Alongside this, we must prepare the energy system for the future, ensuring our regulation adapts to meet new demands. We have recently consulted on changes to how some elements of network charges are recovered to ensure this is fair to consumers. Today, our proposals on the next price controls and the reform of forward-looking charges for access to the system lay the groundwork for a smarter, more efficient and flexible, low carbon energy system that is fair to all consumers.

A handwritten signature in black ink that reads "Martin Cave". The signature is written in a cursive, slightly slanted style.

**Martin Cave**

## RIIO-2 at a glance

We believe our proposals represent a fair deal...

### For today's consumers:

- Funding to maintain safe, secure and reliable networks
- Lower costs of financing
- Incentives to drive down costs and improve services



### For tomorrow's consumers:

- Innovation support to address key energy issues
- Measures to unlock the potential of the whole system
- Incentives to secure long term network reliability



### For consumers in vulnerable situations:

- Encouraging networks to team up with others to deliver coordinated heating solutions, and assist the fuel poor with getting connected to the gas network
- Measures to encourage high standards



### For the environment:

- Funding and incentives to reduce the environmental impact of networks



### For investors:

- Achieving a fair balance between risk and returns
- Returns in line with market conditions
- Higher returns for outstanding performers
- Protections for debt providers



### ...and can respond to change:



- A shorter price control
- Governance to give direction and guidance on strategic issues
- Competition to use markets and flexibility providers to identify the best solutions
- Stronger incentives where the past is a good guide to the future
- Adjustment mechanisms to reset allowances and targets
- Mechanisms to protect against unexpectedly high or low returns

## 1. Executive summary

### Introduction

- 1.1 We set price controls for the companies that operate the gas and electricity networks in Great Britain (GB) using the RIIO Framework. RIIO involves setting **R**evenue using **I**ncentives to deliver **I**nnovation and **O**utputs.
- 1.2 In July 2018, we issued our decision on the RIIO-2 Framework. In this consultation, we provide more detail on how we propose to apply this framework in each of the sectors that have their next price control starting in 2021. These controls will apply to the companies that operate the gas distribution, gas transmission, electricity transmission networks and the electricity system operator.
- 1.3 This consultation is your opportunity to provide us with views on our proposals.

### We want customers to be at the heart of the price control in RIIO-2

- 1.4 Network companies must continue to provide safe, secure and reliable energy networks and systems for existing and future consumers. To support this, we are proposing to introduce a simpler outcomes-based framework. This will enable us to set outputs and incentives that reflect what consumers really value.
- 1.5 Our proposals will also mean that customers in vulnerable situations, or those who are poorly served, will see improvements in service through strengthened licence obligations, and funding provided through the price control.
- 1.6 To ensure these companies adapt and respond to changing consumer requirements, we are strengthening the voice of the consumer so that consumer advocates can challenge company spending plans, and make sure they properly reflect what consumers need and value.

### We want networks that are prepared for the future

- 1.7 RIIO-2 comes at a time when the forces of decentralisation, decarbonisation and digitalisation are changing the way in which energy is produced, transported and consumed. We are designing a price control framework that can flex to a range of exciting future possibilities, while encouraging efficiency, innovation and the scope to make investments to support the energy system transformation that is taking place.
- 1.8 We are proposing a reformed innovation stimulus that will fund solutions to the biggest research and development challenges facing networks, and is a lot more joined up with government; with a bigger role for third party innovators.
- 1.9 We propose arrangements to unlock the benefits to the whole system of better coordination and planning. We also propose to use competition through established and emerging markets, to ensure that the best and most innovative solutions are used to solve network problems, regardless of who proposes them.

### We have also learnt lessons from previous price controls

- 1.10 We want a better balance between risk and reward in RIIO-2. Our package of proposals will set the returns that these companies earn to reflect the risks that they face in our stable, predictable regulatory environment.
- 1.11 We want to continue to use strong incentive-based regulation to align the interests of companies and consumers in delivering high quality service at the

lowest cost. The better performing companies will be able to earn higher returns if they are able to improve the quality of the service they provide and lower their costs. Equally, poor performers should expect to earn less.

- 1.12 However, to cope with the consequences of rapid change in the energy system, we are proposing to introduce additional protection – for consumers and for investors – from extreme deviations from expectations over the shorter five-year control period, through our proposed return adjustment mechanisms. This will mean that the controls will operate as normal ex ante incentive-based controls for the most part, but with some automatic correction mechanisms to cope with low likelihood, extreme outcomes in a changing system.
- 1.13 We propose to use indexation rather than making forecasts wherever feasible. This includes the cost of equity, the cost of debt and the input prices of labour and construction materials. These will help the controls remain dynamic and flexible as the system transitions to one of a range of futures, so that network companies (and the system operator) can play a full role in enabling positive change for consumers.

### **Sectors to which these proposals apply**

- 1.14 Many of the features of RIIO-2 will be common to the sectors with price controls starting in 2021. In this core document, we set out our cross-sector proposals. These will apply across the gas distribution, and gas and electricity transmission networks. They will also apply, in part, to the Electricity System Operator (ESO) although due to the nature of their activities, some elements are less applicable.
- 1.15 We provide a separate annex for each of these sectors. These annexes contain more detail on how our proposals will be applied in the context of each sector. We have also published a separate Finance annex, which provides further details on our finance proposals.
- 1.16 We are not setting out proposals for the electricity distribution sector at this stage. We will consult on arrangements for electricity distribution companies prior to any decisions being made for the sector. This will include consideration of the applicability of the approach taken in other sectors and the specific features of electricity distribution that may warrant a departure from that approach.
- 1.17 Subject to that consultation, and any developments in the interim period (of which Ofgem will take full cognisance), certain measures set out in our current thinking in this consultation document may be capable, in principle, of application for RIIO-ED2.

### **Our detailed proposals**

- 1.18 We provide more detail on our cross-sector proposals in the following chapters of this document.

#### Giving consumers a stronger voice

- 1.19 Chapter 3 sets out the different models for enhanced engagement in RIIO-2 that will ensure consumers are firmly at the heart of the process. In gas distribution, companies have set up Customer Engagement Groups and in transmission, companies have established User Groups to provide input and challenge to their Business Plan.
- 1.20 We have also set up an independent RIIO-2 Consumer Challenge Group to assess proposals from companies in all of these sectors. We propose that the views of

these groups, on both the Business Plan and ongoing commitment to stakeholder engagement, will inform our assessment of company Business Plans and the allocation of any associated financial reward or penalty.

#### Reflecting what consumers want and value from networks

- 1.21 In Chapter 4, we are proposing to consolidate the six existing output categories into three new categories focusing on outcomes for the consumer, for the network/system and for the environment. We are consulting on our approach to setting output targets and incentives. We also set out proposed criteria that we will use to assess proposals for output delivery incentives that network companies might include in their Business Plans.

#### Enabling whole system solutions

- 1.22 In Chapter 5, we propose to use a 'narrow' definition of whole system for establishing and incentivising the activities we expect companies to undertake as business as usual. We are consulting on different ways we might enable or remove obstacles to the delivery of whole system solutions.

#### Ensuring future resilience

- 1.23 In Chapter 6, for asset resilience, we will consider companies' proposed actions to reduce the future risk of asset failure in our assessment of their Business Plans. We propose to set network companies output targets that reflect the improved resilience that should result from their actions, with the risk of a financial penalty if they under-deliver against these.
- 1.24 We propose to ask network companies to submit Business Plans that demonstrate their proposals for ensuring they will have a workforce in place with the skills and resource necessary to meet the future needs of network users.
- 1.25 For cyber security, we propose to fund companies, for what is beyond 'business as usual' activities, to meet the necessary requirements for the overall cyber security and cyber resilience of the networks. We propose to introduce mechanisms to adjust applicable funding if requirements on companies change.

#### Managing uncertainty

- 1.26 In Chapter 7, we set out our proposals to manage uncertainty over the five-year price control period, including the use of uncertainty mechanisms and the approach to enable anticipatory investment where we expect it to deliver benefits to consumers. We also propose higher hurdles for new investment, new governance arrangements to support decision making and we are considering whether greater risk-sharing may be appropriate.

#### Driving innovation and efficiency

- 1.27 In Chapter 8, we set out proposals to reform our innovation package, ensuring greater levels of innovation can be delivered through core BAU activities.
- 1.28 We propose to introduce a new network innovation funding pot that will have a sharper focus on strategic energy system transition challenges, increase engagement from third parties, and we consult on the case for retaining a better targeted annual innovation allowance.
- 1.29 We are consulting on the potential expansion of competition and we are seeking views on which organisation(s) may be best placed to undertake different types of competition.



### Simplifying Business Plan assessment

- 1.30 In Chapter 9, we propose to remove the Information Quality Incentive (IQI) as a Business Plan and totex incentive for network companies. We propose introducing a new Business Plan incentive. This would take into account both the ambition of the cost forecasts that companies propose, alongside the extent to which their plan will deliver high quality services for consumers. We propose to set totex incentive rates using a 'blended sharing factor' approach that reflects the rigour with which companies have justified the costs they submit to us.

### Fair returns and financeability

- 1.31 In Chapter 10, we consult on our proposed methodology to determine the financing costs for RIIO-2 and our proposals for introducing return adjustment mechanisms (RAMs).
- 1.32 The primary purpose of this consultation from a fair returns and financeability perspective is to propose an appropriate methodological process for setting cost of capital allowances at the final Determination stage in 2020. However, for illustrative purposes and for company Business Plans, working assumptions are provided, based on the application of the methodologies being consulted on, these are based on current market data and evidence.
- 1.33 We are consulting on applying full indexation as our approach to setting the cost of debt. We propose to rule out cost of debt performance sharing.
- 1.34 Our updated estimated range for the cost of equity is 4.0-5.0% annual real CPIH (3.0-4.0% real RPI) were the price controls to be set under today's market conditions using the methodology being consulted on. We propose to distinguish between expected and allowed returns, which leads us to a working assumption of 4% real CPIH allowed equity return. We propose to index the cost of equity to the real risk-free rate.
- 1.35 We are also consulting on our approach to assessing financeability and the actions available to companies to address any financeability concerns. We are seeking stakeholder views on the objectives, design principles and draft process set out for a cashflow floor to support creditworthiness of licensees in the event of material underperformance.
- 1.36 On inflation, we propose to use CPIH from RIIO-2 onwards for the purposes of calculating RAV indexation and allowed returns. We do not propose to phase the move away from RPI.
- 1.37 We are consulting on introducing return adjustment mechanisms (RAMs) to guard against the risk of much higher or lower returns than those expected at the outset of the control. For the gas distribution sector, we are consulting on an approach that would link return adjustments to the performance of the sector as a whole.<sup>1</sup> For the gas and electricity transmission sectors, we are proposing to use a sculpted sharing approach based on the performance of individual companies.<sup>2</sup>
- 1.38 In Chapter 11, we provide an overview of our proposals and describe the different balances we are seeking to strike. These include the risks that companies are exposed to and the returns they receive. Our intention to set as accurate a price

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<sup>1</sup> Under this approach, if the average return of the sector as a whole exceeds a predetermined threshold, the returns of individual companies in that sector would be adjusted.

<sup>2</sup> Under this approach, the more a company's return exceeds a predetermined threshold, the higher the proportion of their return would be adjusted.

control as possible, while retaining a level of simplicity and how we balance the need to set an efficient price control against the need for it to be fair for both current and future consumers.

- 1.39 We provide separate appendices with supplementary analysis and detail on the following:
- Appendix 1 – Real price effects and ongoing efficiency
  - Appendix 2 - Supplementary information on late and early competition models
  - Appendix 3 - Proposed Business Plan incentive
  - Appendix 4 - Return adjustment mechanisms
  - Appendix 5 - Preliminary assessment of the combined impact of our RIIO-2 proposals
  - Appendix 6 - Consolidated List of Consultation Questions

### **Sector-specific proposals**

- 1.40 The type of network services that companies will be required to deliver will differ between sectors. This reflects their separate functions and the different needs of their users and consumers.
- 1.41 We intend to set these price controls to reflect the key role that these companies are likely to play in facilitating the energy systems transition, encouraging flexibility and enabling decarbonisation.
- 1.42 We aim to ensure the outputs and incentives we apply in each sector deliver value for money for consumers, for example by embedding performance improvements and cost efficiencies. We also aim to have in place mechanisms that manage uncertainty in a way that protects the interests of consumers and investors, while maintaining incentives on companies to seek out further efficiencies and service quality improvements.
- 1.43 We provide a separate annex for the gas transmission, gas distribution, electricity transmission sectors and the electricity system operator. Here we provide more detail on the outputs we propose, along with any other sector-specific arrangements we consider are necessary. These annexes include our proposals for the role network companies can play in addressing consumer vulnerability. Full detail on these is provided within the annexes, but in summary:

#### Consumer vulnerability (in relation to distribution companies)

- 1.44 We propose to strengthen the minimum standards we expect of companies in their provision of services to these customers. We also propose a dedicated allowance to support initiatives that will offer additional benefit and we will take into account the quality of plans in this area in our assessment of their Business Plans and the allocation of any financial reward or penalty.
- 1.45 Our proposed approach for gas distribution will also be relevant in principle to electricity distribution, although arrangements for electricity distribution network companies will be subject to future consultation. At this stage, we are interested in the potential for effective collaboration between networks in both sectors in providing support to vulnerable or poorly served groups.

- 1.46 In our sector methodologies, we seek views on the extent to which the potential outputs discussed:
- achieve the appropriate balance and focus on the areas that are of value to consumers and stakeholders and should be included as part of each sector's outputs package
  - align with our overarching outputs framework as described in Chapter 4 of this core document.
- 1.47 We also welcome views on whether there are any alternative outputs and/or mechanisms not identified here which we should be considering.

## 2. Introduction

### What are we consulting on?

- 2.1 This is our consultation on the methodology we will apply for setting the RIIO-2 price controls for the gas distribution and gas and electricity transmission networks and the electricity system operator. These price controls will run from 2021-2026.
- 2.2 The next price control for electricity distribution network operators (DNOs) will begin in 2023 and we are not consulting on proposals for the sector at this stage. As indicated above, certain measures set out in our current thinking in this consultation document could, in principle, apply to RIIO-ED2, but this would be subject to future consultation on our proposed sector specific methodology.
- 2.3 We began this process in July 2017 when we issued an Open Letter, setting out the context for RIIO-2 and inviting views from stakeholders on the framework. In March 2018, we issued a consultation on the overarching framework and followed this with our RIIO-2 Framework decision in July 2018. We are now in the process of developing the methodology we will use to apply this framework in the context of each sector. We provide further information on the future milestones for RIIO-2 in Chapter 11.

### Context

- 2.4 We set price controls for the companies that operate the gas and electricity networks in Great Britain, determining the outputs that the gas and electricity network companies deliver for consumers and the revenues they are allowed to recover in doing so.
- 2.5 Since privatisation, our approach to setting price controls has delivered a number of benefits for consumers. This has included significant investment in the network infrastructure and substantial improvements in reliability.
- 2.6 Ofgem-commissioned research from the Energy Policy Research Group (EPRG) at the University of Cambridge has also shown improvements in productivity levels in the years since 1990 that has outpaced the wider GB economy, with stronger growth when quality of service is included.<sup>3</sup>
- 2.7 Since 2013, we have used the RIIO framework to set price controls, where the **R**evenues the companies earn are linked to their response to **I**ncentives to deliver **I**nnovation and **O**utputs. The second round of RIIO price controls (RIIO-2) will begin in 2021 for the gas distribution and gas and electricity transmission networks and as we signalled in our Forward Work Plan for 2018-19 are an integral element of 'Ensuring network companies deliver for consumers in a changing system'.
- 2.8 Earlier this year, we consulted and decided on a number of elements in the RIIO Framework. This is a consultation on how we might implement this framework for the sectors starting their next price control in 2021.
- 2.9 Our objective for RIIO-2 is to ensure that regulated network companies deliver the value for money services that both existing and future consumers need. This involves delivering the following outcomes:

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<sup>3</sup> Analysis from the Energy Policy Research Group that is published alongside this consultation.

- Improving the consumer and network user experience: Network companies must deliver a high quality and reliable service to all network users and consumers, including those who are in vulnerable situations.
- Supporting the energy system transition: Network companies must enable the transition to a low carbon, consumer-focused energy system.
- Improving the network and its operation: Network companies must deliver a safe, sustainable and resilient network that is more responsive to change.

2.10 We are seeking to achieve this objective by:

- Giving consumers a stronger voice in setting outputs, shaping and assessing Business Plans;
- Allowing network companies to earn returns that are fair and represent value for consumers, and properly reflect the risks faced in these businesses and the prevailing financial market conditions;
- Incentivising network companies to respond in ways that benefit consumers to the risks and opportunities created by potentially dramatic changes in how networks are used;
- Using the regulatory framework, or competition where appropriate, to drive innovation and efficiency, and
- Simplifying the price controls by focusing on items of greatest value to consumers.

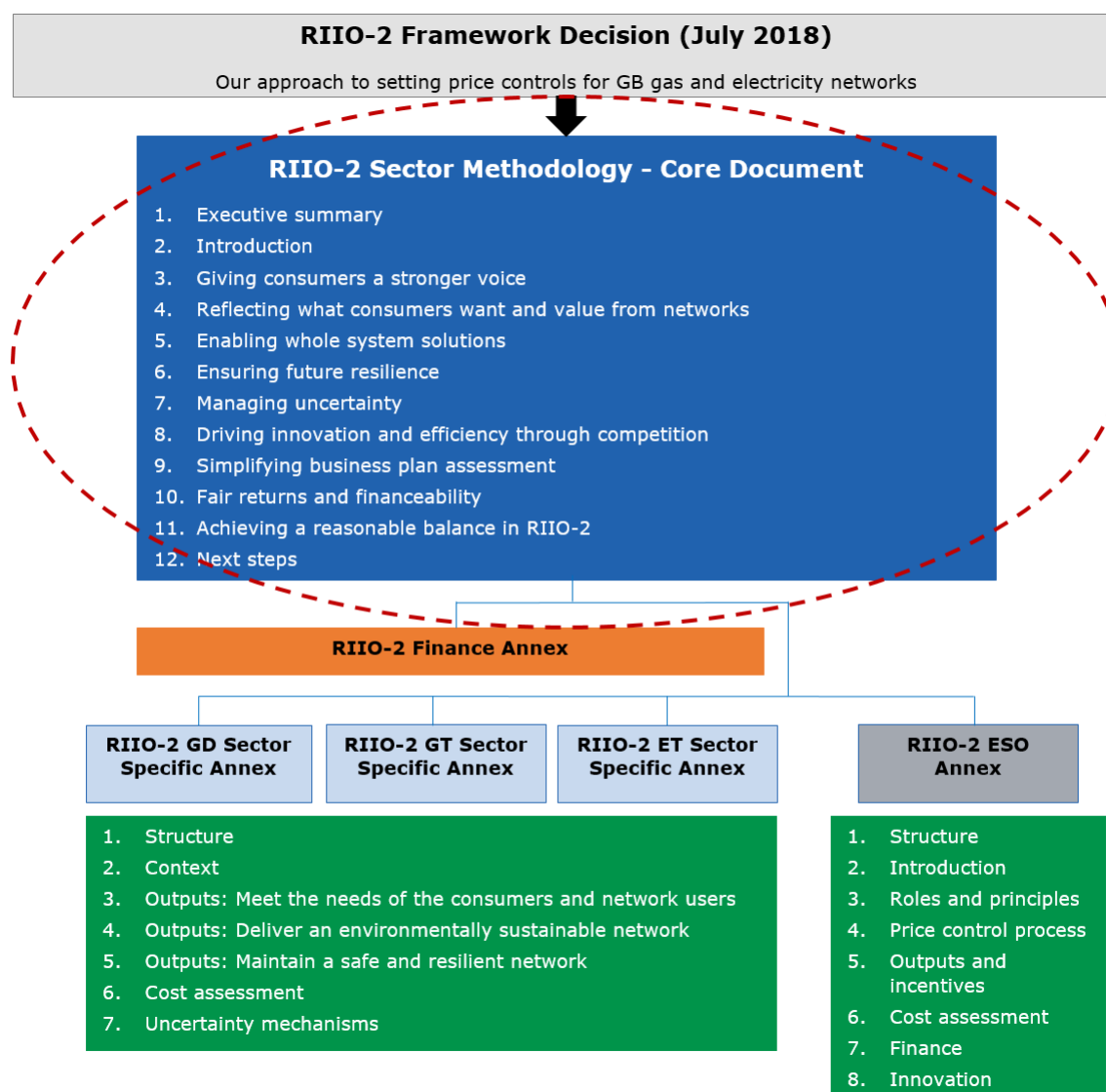
### **Structure of this document and sector-specific annexes**

2.11 Many of the features of RIIO-2 will be common to the sectors with price controls starting in 2021. In this core document we provide our proposals for consultation that will apply across these sectors, except where otherwise indicated.

2.12 The type of network services that the companies need to deliver will be different between sectors. This reflects their separate functions and the needs of their respective users and consumers.

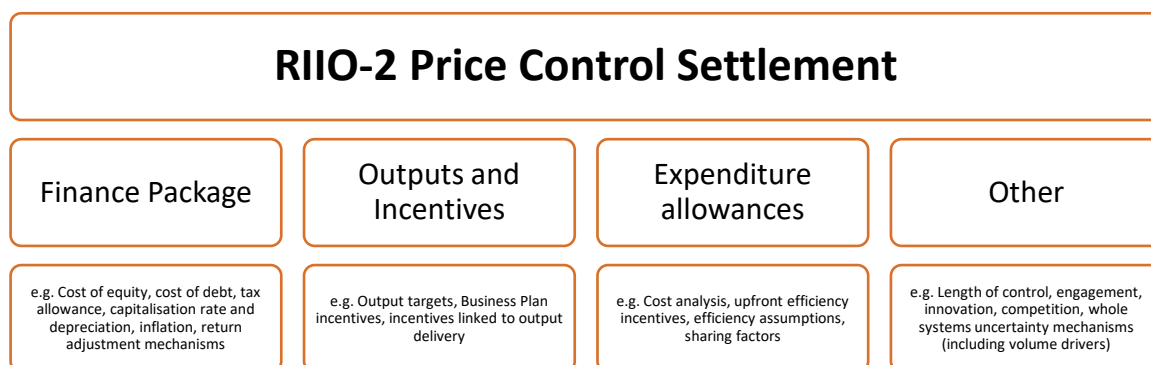
2.13 The ESO performs a different function to the network companies and is 'asset-light' in comparison. As a result, the price control arrangements for the ESO are more standalone. In general, we expect the overarching principles set out in this core document should apply to the ESO. However, in certain cases, the practical application of these principles may be different. We have set out within the ESO consultation document which proposals from the core document are applicable to the ESO.

2.14 We provide a separate annex for each sector, in which we give more detail on our proposed outputs, along with any other sector-specific arrangements we consider to be necessary. We have also published a separate finance annex, which provides further details on our finance proposals. The diagram below illustrates how this package of documents sit together.



### Interlinkages within RIIO-2

- 2.15 This consultation document on the sector-specific methodologies is a key step towards determining the RIIO-2 price control settlements for the gas distribution and electricity and gas transmission companies (April 2021). The implications for the electricity distribution sector, which starts two years later in April 2023, are set out below (see paragraphs 2.30 to 2.31)
- 2.16 The final price control settlement will consist of a number of individual building blocks, as illustrated in the graphic below.



2.17 Given the breadth of the RIIO-2 Framework, there are inevitably a number of interlinkages between different elements.

2.18 In reaching a final decision on the RIIO-2 settlement for each licensee, we will consider how the individual building blocks and associated sub-components interact with one another to deliver a price control that is in the interests of existing and future consumers, and in line with our statutory duties.

2.19 As we work towards our initial and final determinations for the electricity and gas transmission, and gas distribution price controls, there are a number of areas where we will be mindful of interdependencies:

- Enhanced engagement will subject company Business Plans to more external scrutiny. This should improve their overall quality. The outputs from this process will inform our assessment of the quality of RIIO-2 Business Plans that we receive and the application of any financial reward or penalty.
- We intend RIIO-2 to stimulate a culture of innovation across sectors. The length of the control, the totex incentive mechanism, the use of competition and the innovation stimulus are all likely to have an impact upon the level of innovation that companies and third parties undertake.
- We also seek to reduce the exposure of both consumers and investors to forecasting risk. We will take this into account in our development of measures to manage uncertainty, incentive arrangements, additional protections to protect debt investors and return adjustment mechanisms.
- The innovation stimulus may also support outcomes that consider whole system impacts. Improvement in network utilisation (through both the price control and price signal reform outside of the price control) should also lead to improved whole system outcomes. Elsewhere we may seek to promote more competition to enable the delivery of whole system solutions.
- Decisions on financial methodologies and the associated parameters all interlink. While we can evaluate each individually, we will, where possible, collectively test them in terms of the overall financeability of the price control 'in the round'.
- The potential use of return adjustment mechanisms is linked to the strength of incentives applied to totex and output delivery, the allowed return on equity and total market returns.

2.20 In designing RIIO-2, we propose to consider the extent to which a successful appeal has consequences, if any, on other components of the price control. We

propose to consider measures for addressing these (for example, a discretionary mechanism), having regard to the factual and legal basis for any decision to allow an appeal. We would consider our approach on a case-by-case basis - for the appealing licensee and, where we consider it appropriate, for any non-appealing licensees. We would have due regard to the Competition and Market Authority's (CMA) determination and directions in any successful appeal, and maintaining the integrity of an effective appeals mechanism. Such options would seek, in appropriate circumstances, to maintain a coherent regulatory settlement, and would also provide further transparency for stakeholders around our decision-making processes and the potential consequences of a successful appeal. We invite views on our proposed approach.

### Output categories questions

CSQ1. Do you have any view on our proposed approach for considering the extent to which a successful appeal has consequences, if any, on other components of the price control?

### Interlinkages with other work

- 2.21 RIIO-2 interacts with a number of activities identified in our Forward Work Programme<sup>4</sup> as well as some of the priority areas outlined in our strategy for regulating the future energy system.<sup>5</sup> The Framework consultation provided further detail on these areas. We are continuing to ensure that all of these areas are joined up. We are all working towards the common purpose of driving innovation and supporting the transition to a low carbon energy system.
- 2.22 One of the key areas where there are strong ties to the RIIO-2 Framework are our changes to how users are charged for access to and use of the network. Network charges serve two purposes:
- They can provide signals about how users can confer costs and benefits on the network in future, to encourage them to use existing network capacity as efficiently as possible and reduce the need for new network investment (we call these 'forward looking charges')
  - They are necessary to ensure that network companies' allowed revenues are recovered in a fair way and in a way that minimises distortions (we call the part of network charges that ensures this 'residual charges')
- 2.23 In electricity, we have also published a decision to launch a Significant Code Review of network access and forward-looking charging arrangements. We are also consulting on proposals for how residual charges need to change through our Targeted Charging Review.
- 2.24 In gas, Ofgem is supporting industry in taking forward the conclusions of the Gas Charging Review to ensure the Transmission Operator charges for access to, and use of, the gas network are compliant with EU law.
- 2.25 Access and forward-looking charging reforms may change the triggers for investment or the amount of investment expected for both electricity transmission

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<sup>4</sup> Forward Work Programme 2018-19

[https://www.ofgem.gov.uk/system/files/docs/2018/03/forward\\_work\\_programme\\_2018-19\\_0.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/03/forward_work_programme_2018-19_0.pdf)

<sup>5</sup> Our strategy for regulating the future energy system <https://www.ofgem.gov.uk/publications-and-updates/our-strategy-regulating-future-energy-system>



- and distribution. They could also change how investment costs are recovered for electricity distribution.
- 2.26 Our aim is to signal changes to access and charging to network companies so that they can consider the implications in their Business Plans. However, we will also need to consider what mechanisms and processes are required to deal with any changes to existing arrangements that may arise during the price control period. One important interaction is that any change to the connection charging boundary at distribution level would affect the allowed revenue which DNOs recover from all customers under the RIIO price control, rather than directly from a connecting customer. We aim to align any change in this area with the start of RIIO-ED2, with the direction confirmed ahead of the RIIO-ED2 sector specific methodology decision so that DNOs can reflect this in their Business Plans.
- 2.27 We are currently consulting on proposed changes to the electricity transmission and distribution licences to clarify licensees' responsibilities in delivering whole system outcomes. We set out expectations that they engage with others to consider the impacts of their actions on other parts of the network, to coordinate in order to identify and implement whole system solutions and to collect and share relevant information and data where this can support whole system outcomes. The consultation was issued on the 17th December and will run for 8 weeks.<sup>6</sup>
- 2.28 The industry is already beginning to make progress in developing whole system approaches. Work under the ENA's Open Networks programme is making progress in whole system planning and forecasting through its work on the future energy scenarios and assessing options for expanding the NOA. They are also working to improve and streamline the connections process at the transmission-distribution interface, and improve the statement of works process. They have published a feasibility report looking at the potential for a system wide resource register to capture information on flexibility providers across the system in a streamlined way
- 2.29 In November 2018, the Government<sup>7</sup> announced an Engineering Standards Review. These standards have changed little in over 50 years, and need to be brought up to date to reflect the needs of the energy systems of the future. This review could have a significant impact on network investment, the level of security built into these networks, and how smart technology could supplement the need for traditional network reinforcement in providing that security.

### **Implications for RIIO-ED2**

- 2.30 The next electricity distribution (RIIO-ED2) price control starts in April 2023 - two years after the other sectors. We are not consulting on proposals for the next electricity distribution price control at this stage. A full consultation on the electricity distribution sector specific methodology will follow in due course, which will consider the applicability of the approach taken in other sectors and the specific features of the electricity distribution sector that may warrant a departure from that approach.
- 2.31 Subject to that consultation, and any developments in the interim period (of which Ofgem will take full cognisance and reflect in the methodology consultation), certain measures set out in our current thinking in this consultation document may be capable, in principle, of application for RIIO-ED2. Accordingly, we will

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<sup>6</sup> <https://www.ofgem.gov.uk/publications-and-updates/consultation-licence-conditions-and-guidance-network-operators-support-efficient-coordinated-and-economical-whole-system>

<sup>7</sup> <https://www.gov.uk/government/speeches/after-the-trilemma-4-principles-for-the-power-sector>

continue to actively engage with the electricity distribution network operators (DNOs) on key aspects of the process and policy for RIIO-ED2, ensuring they can contribute fully and effectively.

### Approach to assessing impacts

- 2.32 In this core document and in the sector-specific annexes, we set out our proposals for setting the RIIO-2 price controls for electricity transmission, gas transmission, gas distribution and the electricity system operator. The relevant chapters of this document and of our RIIO-2 Framework consultation and decision should be referred to for the reasoning, evidence, assumptions and calculations we have used to inform our initial assessment of the impact of these proposals.
- 2.33 In Chapter 11, we discuss how our proposals aim to achieve an appropriate balance between risk and reward, accuracy and simplicity and efficiency and fairness. We are seeking views from stakeholders on the balance we have struck. This feedback will be an important input to our assessment of the combined impact of our RIIO-2 proposals.
- 2.34 In Appendix 5, we provide a preliminary impact assessment of our proposals and in this appendix we seek your views on our initial thinking. We welcome further information and evidence from stakeholders to support us in our development of this assessment.

### Consultation stages

- 2.35 The graphic below illustrates the current timeline associated with this consultation. Chapter 11 provides more detail on our next steps and the overarching timetable for the RIIO-2 price controls.



### How to respond

- 2.36 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.
- 2.37 We have asked for your feedback questions throughout this document and the accompanying annexes. Please respond to each one as fully as you can. Where you are responding to specific questions, please do use the full question code (letters followed by numbers).
- 2.38 We will publish non-confidential responses on our website at [www.ofgem.gov.uk/consultations](http://www.ofgem.gov.uk/consultations).

### Your response, data and confidentiality

- 2.39 You can ask us to keep your response, or parts of your response, confidential. We will 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.
- 2.40 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 will 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.
- 2.41 If the information you give in your response contains personal data under the General Data Protection Regulation 2016/379 (GDPR) and domestic legislation on data protection, 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.
- 2.42 If you wish to respond confidentially, we will keep your response itself confidential, but we will publish the number (but not the names) of confidential responses we receive. We will not 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.


### **General feedback**

- 2.43 We believe that consultation is at the heart of good policy development. We welcome any comments about how we have run this consultation. We would also like to get your answers to these questions:
- Do you have any comments about the overall process of this consultation?
  - Do you have any comments about its tone and content?
  - Was it easy to read and understand? Or could it have been better written?
  - Were its conclusions balanced?
  - Did it make reasoned recommendations for improvement?
  - Any further comments?
- 2.44 Please send any general feedback comments to [stakeholders@ofgem.gov.uk](mailto:stakeholders@ofgem.gov.uk)

### **How to track the progress of the consultation**

- 2.45 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](https://www.ofgem.gov.uk/consultations).


## Notifications

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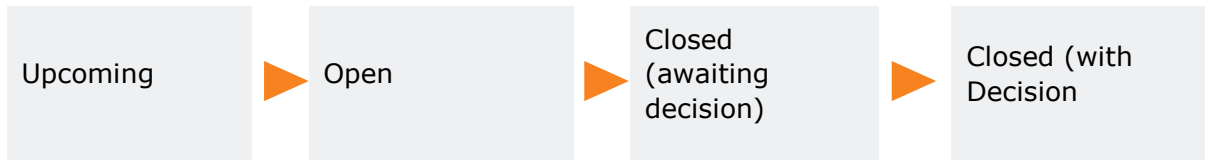
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2.46 Once subscribed to the notifications for a particular consultation, you will receive an email to notify you when it has changed status. Our consultation stages are:



### 3. Giving consumers a stronger voice

#### **The enhanced stakeholder engagement process for RIIO-2 is now established.**

We expect network companies to work with the Customer Engagement Groups in Distribution, User Groups in Transmission and for the ESO, and the RIIO-2 Challenge Group to challenge and scrutinise their Business Plan proposals. We will take into account the views of these groups in our assessment of each company's Business Plan.

#### **Introduction**

- 3.1 The aim of the enhanced engagement process is to give consumers a stronger voice both in the price control settlement process and in the day-to-day business of the network companies.

#### **Summary of RIIO-2 Framework Decisions**

- 3.2 In our RIIO-2 Framework decision, we confirmed the new arrangements for enhanced stakeholder engagement for RIIO-2. These arrangements involve structured challenge to the company Business Plans by groups consisting of expert consumer advocates and network users.
- 3.3 These groups have now been set up;<sup>8</sup> each transmission company and the ESO now has a User Group, and each gas distribution company has a Customer Engagement Group. These company specific groups are independently chaired. They will provide us with a public report with their views on the companies' Business Plans for RIIO-2. We have also established a RIIO-2 Challenge Group, which is also independently chaired. This group will also provide us with a public report on all companies' Business Plans.
- 3.4 We also confirmed that we will hold Open Hearings prior to our initial determinations of the price control to focus on areas of disagreement raised by the various groups, and to invite any other evidence in support of, or against, company Business Plans.
- 3.5 The Authority retains the ultimate responsibility for making initial and final determinations relating to the Business Plans, using, among other things, evidence from the enhanced engagement process as a key input.

#### **What this means for RIIO-2**

- 3.6 Having set up the new enhanced stakeholder engagement framework for RIIO-2, we now expect companies to engage fully with the process. We expect companies to follow the guidance we issued in April 2018 (which may be periodically updated) and provide timely information to these groups to enable them to robustly challenge their Business Plan proposals.
- 3.7 Companies should take full drafts of their Business Plans to the RIIO-2 Challenge Group twice, before they are submitted as final to Ofgem in December 2019. Further detail on the reporting requirements from companies is provided in our Business Planning guidance. This was initially published in September 2018 and an updated version will be published shortly.
- 3.8 The companies are expected to submit the first draft of their full plan by 1 July 2019 to the RIIO-2 Challenge Group. Following the first round of challenge, a

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<sup>8</sup> Further details on all the groups can be found [here](#).

second draft of full plan is expected to be submitted to the RIIO-2 Challenge Group by 1 October 2019.

- 3.9 While Ofgem are not conducting an assessment of these draft plans, we need to use the data provided by the companies to the RIIO-2 Challenge to prepare the methodologies and models we will use to assess the final Business Plans. This data should be submitted to the RIIO-2 Challenge Group in data templates that are due to be issued by Ofgem in March 2019.
- 3.10 In Chapter 9, we describe our proposal for a new Business Plan incentive.<sup>9</sup> This will involve an assessment of the cost and quality of Business Plans. Our proposal is that high quality plans would have the ability to earn a financial reward and companies submitting poorer quality plans may face a financial penalty.
- 3.11 Companies that fail to engage adequately with the RIIO-2 Challenge Group, User Groups and Customer Engagement Groups may face a penalty as part of this Business Plan incentive. We will seek views from these groups on the quality of engagement by each company as part of their report (due to be submitted alongside Business Plans in December 2019), and those deemed unsatisfactory may be penalised.
- 3.12 As well as informing Business Plans, we would also like to see companies undertake robust and high quality engagement with stakeholders on an ongoing basis. We expect Business Plans to demonstrate the range of activities that companies will undertake to achieve this, including how they will report on the delivery of Business Plan commitments and what ongoing role the groups could play in holding them to account.
- 3.13 We are also consulting<sup>10</sup> on whether these ongoing stakeholder engagement activities require reputational or financial incentives, or should it be a condition of the licence. Further details can be found in the relevant sector specific annexes.
- 3.14 For more information please refer to our guidance on enhanced engagement<sup>11</sup> that we published in April 2018. We intend to update this guidance in due course, including setting out the structure of reports we expect to receive from each of the groups.

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<sup>9</sup> We don't propose to introduce a specific Business Plan incentive for the ESO. However, we will take into account how the ESO have engaged with their User Group and the quality and ambition of the Business Plans in determining the overall incentive reward or penalty to be applied each year. Further detail on the incentives arrangements for the ESO are set out in the outputs and incentives section of the ESO annex.

<sup>10</sup> We do not propose to introduce a specific incentive for ESO on ongoing stakeholder engagement. However, their quality of engagement with stakeholders on an ongoing basis will be taken into account in determining the overall incentive reward or penalty to be applied each year.

<sup>11</sup> Our guidance on enhanced stakeholder engagement can be accessed [here](#).

## 4. Reflecting what consumers want and value from networks

**In this chapter, we outline our proposals for an overarching approach to outputs and incentives.**

We are proposing three output categories that describe the outcomes for consumers that we are seeking to achieve. We provide more detail on how we will use licence obligations and price control deliverables to ensure delivery of projects and services that companies are funded for. We describe how we will use incentives to encourage performance improvements, including the consideration of more dynamic, relative targets. We also explain how we expect companies to approach the design of any bespoke outputs identified through their engagement activities.

**Consultation questions:** We seek views on all of the issues raised in this chapter. We ask specific questions on our proposals in relation to setting outputs and incentives. In your response, please provide evidence and alternative proposals, where relevant. A full list of questions is available at Appendix 6.

### Introduction

- 4.1 How we design the outputs that companies should deliver and how we incentivise their performance should drive outcomes that benefit consumers.
- 4.2 In our RIIO-2 Framework decision, we noted our decision to continue to use outputs and incentives to drive improvements that consumers value. We also signalled that we would distinguish between different types of outputs and incentives to ensure we can hold licensees to account.
- 4.3 In this section, we outline our overarching framework for outputs and incentives in RIIO-2. The framework presented here will apply to all four sectors: electricity and gas transmission, and electricity and gas distribution. We set out our proposals for implementing this framework in our electricity and gas transmission, and gas distribution methodologies in the relevant annexes. We note that the electricity distribution price control commences two years after the other sectors and so detailed work on the sector specific methodology will commence at a later stage.
- 4.4 In September 2018, we held a workshop to discuss our approach to outputs and incentives for RIIO-2.<sup>12</sup> We have taken into account feedback from this event and other sector-specific working groups<sup>13</sup> in further developing our proposals.

### Our proposed approach for RIIO-2

#### Consolidation of output categories

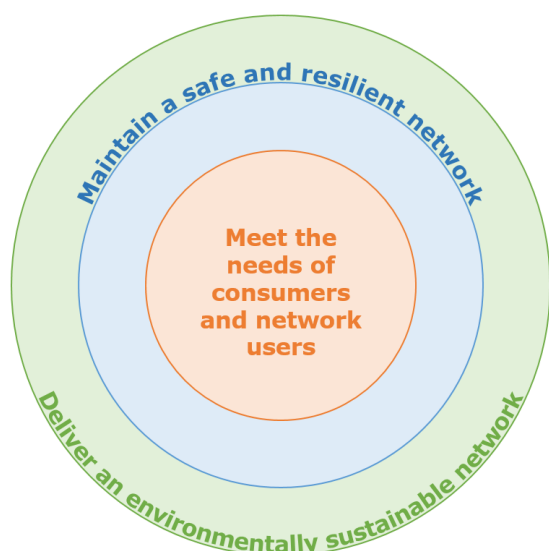
- 4.5 In RIIO-1, we introduced a set of six output categories. These were developed through a detailed series of industry working groups and through engagement with our Consumer Challenge Group.

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<sup>12</sup> Materials from this workshop are available on our website:  
<https://www.ofgem.gov.uk/publications-and-updates/riio-2-workshop-outputs-totex-and-business-plans-incentives>

<sup>13</sup> Details of sector-specific working groups are available here:  
<https://www.ofgem.gov.uk/network-regulation-riio-model/network-price-controls-2021-riio-2/riio-2-events-seminars-and-working-groups>

- 4.6 In our RIIO-2 Framework decision, we stated that we would specify outputs as a set of consumer-facing outcomes that we expect companies to deliver. Within this context, we are now proposing to consolidate the six existing output categories into three overarching outcomes. These place the consumer experience at the heart of RIIO-2 and reflect energy networks' key role as agents of positive change:



Network companies must deliver a high quality and reliable service to all network users and consumers, including those in vulnerable situations

Network companies must deliver a safe and resilient network that is efficient and responsive to change

Network companies must enable the transition towards a smart, flexible, low cost and low carbon energy system for all consumers and network users.

- 4.7 We have sought views from stakeholders on earlier versions of these three new output categories through working groups and a workshop. Some participants recognised the benefits of using output categories to articulate more explicitly the outcomes that network operators are expected to deliver through their price control settlements. However, other stakeholders consider that the six existing output categories are simpler, generally well understood by stakeholders and consumers, and were developed through direct customer engagement. Their view is that our new categories risk conflating outputs with outcomes.
- 4.8 We have considered retaining the existing output categories. Our view remains that there is benefit in describing what we are seeking to achieve in RIIO-2 by articulating clearer, consolidated outcomes.
- 4.9 Finally, we also note that participants and some other stakeholders have highlighted transparency around financial structures and affordability of the settlement as other key areas for consideration. Our view is that these are better captured through other components of the framework, for example through improved reporting, the use of licence obligations, and our assessment of efficient costs. For this reason, we have not reflected these in our three proposed output categories.

### Output categories questions

CSQ2. Do you agree with our proposed three new output categories?

CSQ3. Are there any other outcomes currently not captured within the three output categories which we should consider including?



### Overarching outputs framework design

- 4.10 Building on RIIO-1, we have developed an overarching framework for RIIO-2 that we think will bring additional clarity around deliverables and consequences for failure to deliver.
- 4.11 In our RIIO-2 Framework decision, we signalled that we would improve clarity and accountability by distinguishing between three types of outputs.
- 4.12 You will find further information on our approach to all types of outputs in each of the sector-specific methodologies sections. At this stage, we are seeking views on the extent to which the potential outputs discussed here:
- represent value for money for consumers and should be included as part of a RIIO-2 outputs package; and
  - align with our overarching outputs framework as described in this chapter.
- 4.13 We also welcome views on whether there are any alternative outputs and/ or mechanisms that we should be considering.

### *Licence Obligations*

- 4.14 We will set minimum standards of performance which we will impose through the introduction of Licence Obligations. Examples of areas where we currently have minimum standards include obligations around connections. Failure to meet these minimum standards could lead to enforcement action and/or penalties.
- 4.15 For RIIO-2, we will consider whether to set new minimum standards or update minimum standards. In doing so, we will consider the extent to which proposing stricter minimum standards would require an increase in related cost allowances or existing payments and the extent of benefit to consumers.

### *Price Control Deliverables (PCDs)*

- 4.16 PCDs will capture those outputs that are directly funded through the price control settlement, including for example:
- Large one-off capital projects – to be delivered to a stated specification, budget or timing
  - Commitments or assumptions associated with a baseline level of funding – e.g. MW of connected generation
  - Other input activities to be delivered to a stated standard – e.g. activities related to changes in government policy. These will be determined on a case-by-case basis and will require policy and legal consideration.
- 4.17 Some PCDs may be funded up-front, with uncertainty mechanisms in place to return funding to consumers where work has not materialised. We will apply this approach where we have confidence that the work is likely to be required. In other circumstances, where the requirement for the investment is less certain, we may set the baseline level of funding at zero, and introduce mechanisms to enable funding if work does materialise. We expect network operators to identify potential PCDs as part of their Business Plans. We will consider our treatment of any proposed PCDs during our cost assessment of company Business Plans.
- 4.18 As a core principle, we propose that companies should not benefit from delay in delivery or failure to deliver PCDs, including delivery which does not meet a specified standard. 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.

- 4.19 We will consider linking certain PCDs to licence obligations. This will help ensure that consequences for failure to deliver, late delivery, or delivery to a lower than expected standard are clarified. This could include for example, the automatic deferral of allowances to ensure revenues are better aligned with the delivery of the output while removing any gains related to timing.
- 4.20 In our workshop and working groups, participants queried whether PCDs would be attached to all individual cost categories. The aim of PCDs is to ensure clarity around what is being funded through the price control settlement where required. We will apply PCDs where there are clear deliverables funded directly through the settlement, rather than to all cost categories.
- 4.21 Concerns were also raised about whether PCDs could create a perverse incentive, if they failed to recognise that better, more efficient solutions may arise. Our initial view is that our framework should achieve the right balance between encouraging delivery and enabling flexibility. In assessing delivery against PCDs, we will distinguish between changes in circumstances outside of company control and genuine efficiencies.

*Service level improvements incentivised through output delivery incentives (ODIs) High-level principles*

- 4.22 We will incentivise service level improvements through ODIs. We propose to set a number of common sector-wide ODIs within each sector, and (where appropriate) across sectors
- 4.23 We set out potential common sector-wide ODIs for consideration in our sector-specific methodologies. We welcome views on whether the outputs that we discuss for potential inclusion achieve the appropriate balance and focus on the areas that are of most value to consumers and stakeholders.
- 4.24 ODIs may be financially incentivised, or reputational only in nature – this will depend on a number of factors, for example the robustness of available evidence:
- we propose to apply reputational incentives mainly in areas that are of stakeholder interest but where robust baseline information is unavailable, and/or where the level of consumer benefit (or willingness to pay) is difficult to specify
  - we propose to apply financial rewards mainly 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
  - we propose to apply financial penalties mainly in areas where we consider that a minimum standard of performance is expected and/or where a financial incentive may support requirements included within licence conditions.
- 4.25 As is the case with RIIO-1, we may introduce incentives that include both a financial reward and penalty, and/or a combination of financial and reputational incentives. Similarly, some outputs may be specified as a combination of licence conditions (for instance, for a minimum standard) and/or ODIs (for performance targets above a minimum standard) and/or PCDs.

### **Overarching outputs framework questions**

We welcome stakeholder views on our approach to the overarching outputs framework in RIIO-2, including:

- CSQ4. Do you agree with our proposed overarching framework for licence obligations, price control deliverables and output delivery incentives?
- CSQ5. Do you agree with our proposals to introduce dynamic and relative incentives, where appropriate? Are there any additional considerations not captured in our proposed framework which you think we should take into account?

### Delivering value for money for consumers

- 4.26 For RIIO-2, we will set stretching targets and ensure financially incentivised outputs deliver value for money for consumers. Within this context, we are proposing to take a dynamic approach to setting targets and to determining the value of any rewards and/or penalties available, where appropriate. We will continue to set static incentives where we consider that this is in the interest of consumers.
- 4.27 A dynamic approach to target setting could include setting targets based on sector-wide performance and/or the introduction of an improvement factor so that targets get more stretching over time.
- 4.28 A dynamic incentive design could help to ensure that targets remain challenging, reflecting improvements over time and/or performance in the sector as a whole.
- 4.29 A dynamic approach to determining the value of incentives could involve setting a fixed reward pot to be allocated on the basis of relative performance. A different version of this approach would involve allocating penalties as well as rewards based on relative performance. This could help drive competition, in particular in those areas where value to consumers is more difficult to quantify.
- 4.30 Alternatively, individual incentives could be set for each company in a sector but with the baseline becoming increasingly challenging over time to ensure that companies are only rewarded if they achieve ongoing incremental improvements.
- 4.31 We set out our proposed overarching approach to dynamic incentives in the table below. We outline proposals for applying this framework in the context of specific incentives in each of the sector methodologies.

	Static	Dynamic	
		Dynamic-absolute	Dynamic-relative
<b>Targets</b>	<p>Targets set at the start of the price control, either based on company's own performance and/or sector performance. Do not evolve during the period.</p> <p>Pros: provides clarity on potential rewards/ penalties associated with performance.</p> <p>Cons: target setting may still be difficult where robust data is not available. Does not capture on-going improvements in performance, or sector-wide performance.</p>	<p>Targets set at the start of the price control either based on company's own performance. Evolve during the period to take account of improvements in company's own and/ or sector performance. This design implicitly assumes that year-on-year incremental performance improvement is achievable.</p> <p>Pros: captures improvements in company performance and helps ensure targets remain stretching.</p> <p>Cons: does not capture sector-wide improvements in performance.</p>	<p>Targets set at the start of the price control either based on company's own performance and/or frontier company. Evolve during the period to take account of improvements in performance across the sector.</p> <p>Pros: captures improvements across sector and helps ensure targets remain stretching.</p> <p>Cons: requires some level of comparability of performance and circumstances.</p>
<b>Rewards</b>	<p>Rewards based on company's own performance against targets.</p> <p>Pros: provides clarity on potential rewards associated with outperformance and fosters collaboration.</p> <p>Cons: does not address potential difficulty in setting the right level of rewards (if data is not available).</p> <p>Potential risk of significant outperformance, depending on how targets were set. Does not drive competition in the sector.</p>	<p>Rewards allocated based on a relative assessment of performance.</p> <p>Pros: drives competition in the sector, in particular where less evidence of consumer value is available. Helps ensure value of incentive reflects benefit to consumers.</p> <p>Cons: requires some level of comparability of performance and could disincentivise collaboration in some instances. Risk of rewarding poor performance and/ or penalising good performance.</p>	
<b>Penalties</b>	<p>Penalties based on company's own performance against targets.</p> <p>Pros: provides clarity on potential penalties associated with poor performance.</p> <p>Cons: does not address potential difficulty in setting the right level of penalties (if data is not available).</p> <p>Does not drive competition in the sector.</p>	<p>Penalties based on company's own performance against targets.</p> <p>Pros: provides clarity on potential penalties associated with poor performance.</p> <p>Cons: does not address potential difficulty in setting the right level of penalties (if data is not available).</p> <p>Does not drive competition in the sector.</p>	<p>Penalties allocated based on a relative assessment of performance.</p> <p>Pros: drives competition in the sector.</p> <p>Cons: requires some level of comparability of performance. Risk of disincentivising collaboration. Risk of disincentivising good performance, which could be partially mitigated through the introduction of stringent minimum standards.</p>

- 4.32 In determining whether to introduce dynamic relative incentives, we recognise that there are a number of considerations which we will need to take into account, including:
- available evidence of consumer value and cost of delivery, in particular where we wish to maintain static incentives, and to determine the size of rewards and/ or penalties
  - the extent to which we would like our framework to drive competition and/ or collaboration in different areas
  - where appropriate, the extent to which company performance and/or company circumstances are comparable.
- 4.33 We will seek views on our ability to compare performance within the context of sector-specific proposals for our outputs and incentives.
- 4.34 Our initial view is that comparison may be more achievable in sectors with a higher number of licensees (gas and electricity distribution), although we will also consider whether a dynamic relative approach is appropriate in the context of electricity transmission.
- 4.35 Where performance is less comparable, we are less likely to take a dynamic relative approach to setting rewards and penalties. However, we may still consider introducing relative or absolute dynamic targets, where the evidence justifies such an approach.

#### Criteria for bespoke outputs

- 4.36 For RIIO-2, we have put in place arrangements designed to give consumers a stronger voice. Within this context, there will be opportunities for network operators to propose bespoke outputs, in collaboration with their stakeholders and Customer Engagement Groups/ User Groups. This could include proposing:
- bespoke PCDs
  - bespoke ODIs, reputational and/or financial in nature, including in areas already covered by common sector-wide outputs
  - more stringent bespoke targets or incentive rates for common ODIs.
- 4.37 Where network operators propose bespoke PCDs, we will assess these as part of our review of company Business Plans. We expect these to be underpinned by robust analysis (e.g. cost benefit analysis (CBAs)) demonstrating value for money for consumers. Network operators should also provide evidence on the extent to which proposals have been scrutinised by stakeholders (e.g. through the enhanced engagement process).
- 4.38 Where network operators propose bespoke ODIs of a financial nature, we will consider whether proposals deliver value for money and are backed by robust evidence and justification.
- 4.39 In assessing proposals, we intend to consider the following. We may be unlikely to support a proposal that does not provide satisfactory evidence in response to the these:
- whether the output reflects a service that consumers expect to receive from a network company and that is not already being provided or funded

- whether the activity in question is best dealt with through the price control, rather than through a government body responsible for the public interest in that area (e.g. Highways Authorities for matters relating to the occupation of the highway)
  - the value that consumers will receive from a proposed new service level, and by extension the potential associated reward and/ or penalty, and the extent to which these are symmetrical, in terms of value and likelihood of outcome
  - 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.
- 4.40 In assessing a proposal, we may also consider supplementary information that may be relevant, such as:
- the level of service provided by other companies/comparators (where available)
  - the activities (and indicative cost) associated with achieving the targeted level of service
  - proposals for licence conditions and/or penalties if performance falls below existing service levels.
- 4.41 In our workshop, participants requested that Ofgem consider bespoke ODIs that could start within period, if additional evidence of consumer value could not be provided in time for the start of the price control. We propose to consider proposals for bespoke ODIs that are intended to start within period, though we note that there could be limited scope for delivering consumer value given the return to a five-year price control and that this will be a consideration within our determination.
- 4.42 Participants also raised concerns around the ability of network operators to propose bespoke outputs, questioning our proposals to introduce common outputs in some areas. We recognise that some stakeholders would prefer more flexibility for network operators in setting outputs. However, our view is that there is significant benefit to being able to compare performance across sectors against key outputs. As highlighted above, this does not preclude network operators working with their stakeholders to propose additional output categories in these and other areas, or to propose more stretching targets.
- 4.43 We recognise that bespoke outputs should reflect the importance of issues to consumers in a company's region. However, in order to ensure that the price control setting process and its ongoing operation is efficient and manageable, it is important that bespoke outputs are only proposed for key areas of high importance to consumers so the focus on companies remains on the issues that matter most. We ask companies to bear these considerations in mind so that the price control does not become too complex or distracts away from consumers' priorities.

### **Bespoke outputs questions**

We welcome stakeholder views on our approach to bespoke outputs in RIIO-2, including:

- CSQ6. Do you agree with our proposals to allow network operators to propose bespoke outputs, in collaboration with their User Groups/ Customer Challenge Groups?
- CSQ7. When assessing proposals for bespoke financial ODIs, are there any additional considerations not captured which we should be taking into account?

## 5. Enabling whole system solutions

### **Enabling whole system solutions has the potential to deliver benefits for network consumers.**

We propose that companies should set out in their Business Plans their role in enabling these solutions and we will take into account their ambition and cost-effectiveness in our assessment of their plans. We have provided our proposed clarification around the focus of 'whole system' to facilitate progress in this area. We also propose to use innovation funding to support schemes that unlock the potential value of a whole system approach. There may be other factors that currently limit the extent to which a whole system approach is adopted. In this chapter, we outline different possible mechanisms that may overcome these and we seek views on whether these are necessary and work coherently with the rest of the price control.

**Consultation questions:** We seek views on all of the issues raised in this chapter. We ask specific questions on our proposals to enable whole system solutions at the relevant part of the chapter. In your response, please provide evidence and alternative proposals, where relevant. A full list of questions is available at Appendix 6.

### **Introduction**

- 5.1 Energy systems and their networks are becoming increasingly interlinked, amongst themselves and in their impact on the wider economy. The actions of a network company can impact other network companies in the same or other energy sectors, as well as non-energy sectors such as transport. As these linkages grow, so too does the value of coordination across the whole system. For example, certain network planning decisions at an electricity distribution level can impact on the costs of managing transmission constraints. Or, as more gas power generators connect, increased coordination between gas and electricity networks could improve efficiency in both sectors.
- 5.2 There is a growing body of evidence that enabling access to whole system solutions to address these impacts could deliver benefits for consumers, and RIIO-2 can support networks in responding to these challenges.

### **Background**

- 5.3 In July 2017, BEIS and Ofgem jointly published 'Upgrading our energy system – smart systems and flexibility plan'.<sup>14</sup> This refers to the need for greater whole electricity system planning between transmission and distribution, including 'coordinated planning and operational processes, data management, and transparency, to enable efficient system decisions'.
- 5.4 There has been further focus on developing whole system coordination in the work on developing the ESO control,<sup>15</sup> the review from Cambridge Economic Policy Associates,<sup>16</sup> and Imperial College, whose analysis suggests substantial savings to be made by networks through greater whole system coordination.<sup>17</sup> Furthermore,

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<sup>14</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/633442/upgrading-our-energy-system-july-2017.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/633442/upgrading-our-energy-system-july-2017.pdf)

<sup>15</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/02/eso\\_roles\\_and\\_principles.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/02/eso_roles_and_principles.pdf)

<sup>16</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/03/cepa\\_review\\_of\\_the\\_riio\\_framework\\_and\\_riio-1\\_performance.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/03/cepa_review_of_the_riio_framework_and_riio-1_performance.pdf)

<sup>17</sup> In the 2016 paper [https://www.e3g.org/docs/Whole-system\\_cost\\_of\\_variable\\_renewables\\_in\\_future\\_GB\\_electricity\\_system.pdf](https://www.e3g.org/docs/Whole-system_cost_of_variable_renewables_in_future_GB_electricity_system.pdf), the authors posit that savings of around £0.5bn per year could be made by 2030 by electricity distribution networks alone.



the Future Power System Architecture (FPSA) project has consistently and strongly advocated the need for whole system thinking.<sup>18</sup>

#### Summary of RIIO-2 Framework decision

- 5.5 In our RIIO-2 Framework Decision, we said we would clarify the term whole system in the context of network price controls, the appropriate role of network companies in supporting the energy transition, and any changes for RIIO-2 that might be appropriate to support whole system outcomes.<sup>19</sup>
- 5.6 We said we would assess the required tools and enablers to realise system coordination and deliver whole system outcomes. These might include the appropriate level of data management and sharing, analysis of the case for new or changing roles for network companies, assessment of Distribution System Operation (DSO) functionalities, and coordination between transmission and distribution operation.

#### **Our proposed approach for RIIO-2**

- 5.7 Enabling greater whole system thinking and coordination should increase the number of options networks have at their disposal when seeking to provide services. A greater diversity of options should provide both short and long-term benefits for network consumers.
- 5.8 The problem to be solved is how to enable greater levels of co-ordination between different parts of the energy system in investment planning, and operational delivery, so that the sum of costs across the system is minimised. The hypothesis is that, left untouched, the system will produce sub-optimal levels of co-ordination which mean the aggregated cost across the system is higher than it needs to be.<sup>20</sup>
- 5.9 For example, greater coordination in forward planning and needs assessment between a transmission network and the distribution network could enable the distribution network to plan for future connections to their network at lower cost than the alternative transmission reinforcement.
- 5.10 We want to understand to what extent the price controls are enablers or blockers to achieving greater levels of co-ordination. Our current hypothesis is that the problem may lie with:
1. incentives (co-ordination takes effort that is not rewarded)
  2. information (co-ordination requires information that is not available)
  3. behaviours (co-ordination requires a change in company practices that is not forthcoming)
  4. processes (co-ordination requires a change to price control processes that hinder it).
- 5.11 We have identified six potential ways we could target these areas:

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<sup>18</sup> <https://es.catapult.org.uk/wp-content/uploads/2018/11/4.-FPSA3-Synthesis-Report-Fast-Track-to-Britains-Future-Power-System.pdf>

<sup>19</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/07/riio-2\\_july\\_decision\\_document\\_final\\_300718.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/07/riio-2_july_decision_document_final_300718.pdf)

<sup>20</sup> We propose that the approach in RIIO-2 will build upon requirements to coordinate in operating efficient networks. In this regard, we note our current consultation for electricity companies on our proposed licence change and guidance to clarify obligations to coordinate: <https://www.ofgem.gov.uk/publications-and-updates/consultation-licence-conditions-and-guidance-network-operators-support-efficient-coordinated-and-economical-whole-system>

1. Business Plan incentive
  2. ensuring network innovation has a whole systems focus
  3. coordination and information sharing incentive
  4. balancing financial incentives between traditional and whole systems behaviour
  5. ensuring the framework is able to flex to meet whole system needs
  6. whole system discretionary funding mechanism.
- 5.12 Our proposals are essentially targeting these areas: 1 and 4 target incentives, 3 targets information, 2 and 6 target behaviours; and 5 targets price control processes. We want to target action at where there is genuine evidence of a problem, and we are not sure all of these are necessary.
- 5.13 There may be legislative limitations on the type of mechanisms we are able to implement to optimise whole system outcomes, even though they may have the potential to be in the interests of consumers. There may also be specific limitations arising from legislation that require a different approach in different sectors. Where appropriate, we may consider bringing forward a case for legislative change.

### **Enabling whole system solutions questions**

We welcome stakeholder views on our approach to enabling whole system solutions in RIIO-2, including:

CSQ8. Do you feel we have defined the problem correctly?

### Providing clarity on 'whole system' scope

- 5.14 We recognise the importance of clarity on the boundaries of the term 'whole system' in the context of the RIIO-2 price control. Some stakeholders believe these should be drawn broadly to encompass energy and additional sectors, such as waste, water, transport, and heat – with some also including activities 'behind the meter'. At the other end of the spectrum, there are stakeholders who prefer a much narrower definition that limits the 'whole system' to distribution and transmission networks, with separate application in gas and electricity sectors.
- 5.15 Our proposed approach is to provide a whole system scope that adopts a narrow focus on coordination of investment planning and operational delivery between the ESO, the GSO and the four network sectors (gas transmission, electricity transmission, gas distribution and electricity distribution).
- 5.16 A broader scope could include other parts of the energy system (e.g. heat), as well as other sectors (e.g. transport, waste). We recognise that there may be circumstances where the application of a broader scope could deliver net benefits for energy consumers.
- 5.17 In general, we do not think network consumers should directly fund the insulation of houses and buildings, or to deliver savings for transport system users. However, we are keen to understand where such wider actions would deliver benefits for consumers, and what potential benefits may arise from these measures.

CSQ9. What views do you have on our proposed approach to adopt a narrow focus for whole systems in the RIIO-2 price control, as set out above?

CSQ10. Where might there be benefits through adopting a broader scope for some mechanisms? Please provide evidence.

### Proposed mechanisms to unlock whole system benefits

5.18 We are considering what mechanisms may be required to provide companies with the necessary incentive and support to enable whole system solutions.

#### *1. Business Planning incentive*

5.19 The Business Plan is the opportunity for network companies to demonstrate their intended approach to enabling whole system solutions.

5.20 Incorporating our consideration of the strength of their 'whole system' thinking within the scope of the Business Planning incentive should encourage companies to think seriously about the actions they might undertake and offer evidence on the net benefits to network consumers of these. We propose that in describing their approach, network companies should be expected to provide:

- evidence of solid plans and processes for joint planning with other network companies, including comprehensive engagement with and endorsement from stakeholders
- evidence of effective consideration of whole system solutions to network planning and constraints in their cost benefit analyses, including identification of uncertainties and their mitigation
- evidence of long-term whole system thinking and value for money, including identification of uncertainties and mitigation.

5.21 Companies that fail to demonstrate that they are meeting minimum requirements should face a consequence. We propose that the Business Planning incentive should apply a financial penalty for network companies who are underperforming against the narrow scope.<sup>21</sup>

5.22 We propose that those companies that can show a more stretching ambition, within the framework of their existing duties, may have the potential to earn an additional financial reward. This might be where they have clearly adopted a higher level of ambition in their approach and as a consequence have been able to identify the likely net benefits for their consumers.

#### *2. Ensuring network innovation has a whole systems focus*

5.23 Given the scale of the energy system transition challenges that network companies face, innovation is vital to ensure that network companies facilitate and contribute to a sustainable and cost-effective energy sector.

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<sup>21</sup> Licensees are responsible for ensuring compliance with their legal and regulatory obligations, including under licence conditions. For the avoidance of doubt, the application of performance incentives and penalties does not preclude us from taking enforcement action in respect of non-compliance, should this be appropriate. Any such action would be in accordance with Ofgem's Enforcement Guidelines.

- 5.24 In RIIO-2, we are proposing to retain an innovation stimulus, but we propose to reform the existing arrangements.<sup>22</sup> There are two aspects to these reforms that could enable whole system thinking. These are the potential introduction of innovation funding for strategic network-related energy system transition challenges and our proposal for network companies in the gas and electricity sectors to work together to jointly produce sector-wide innovation strategies.
- 5.25 As part of the proposals to introduce a new funding pot for strategic network-related energy system transition challenges, we will look to consider supporting collaboration within the regulated sectors if this likely to generate net benefits to network consumers.
- 5.26 Network companies are already using RIIO-1 innovation funding to carry out joint innovative projects on a whole system basis, for example on hybrid heating systems.<sup>23</sup> To encourage more of this collaboration, we will further consider whether the joint gas and electricity innovation strategies should each have a strand dedicated to uncovering and collaborating on whole system activities to encourage strategic thinking across network boundaries.<sup>24</sup>

### *3. Coordination and information sharing incentive*

- 5.27 One of the primary drivers of unlocking whole system benefits to network consumers arises through the effective coordination between that network and other networks and sectors. To achieve this, a network will have to undertake work in identifying how best to coordinate with others. Where this is above business as usual practices, this could involve additional costs that are not currently directly recovered through the price control mechanism.
- 5.28 Conversely, where networks do not provide information on 'business as usual' (BAU) opportunities, they could be penalised to reflect the potential detriment to consumers.
- 5.29 A possible mechanism to address this would look to incentivise networks in undertaking additional options analysis. This could be in the form of an additional reward payment where they have undertaken actions that have the potential to reveal whole system solutions that would generate benefits to network consumers. We are seeking broad views on how such a mechanism might operate, including: an upfront allowance with specific claw back mechanisms; mechanistic funding for options analysis associated with a predetermined range of projects; or a project-specific revenue stream.
- 5.30 This incentive could be designed as a symmetrical mechanism, such that actions which demonstrably prevent the unlocking of whole system benefits are penalised. This could take the form of either non-delivery of a minimum level of performance as required by networks' licences, or by refusing to engage in proposals from other parties' that offered potential benefits for their consumers.
- 5.31 Our engagement on this possible mechanism has revealed a view from networks that this would drive improvements to existing levels of coordination and information sharing. Others expressed concern that it may be difficult to establish

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<sup>22</sup> See Chapter 8 'Driving innovation and efficiency through competition' for more detail on our proposed reforms of the innovation stimulus package.

<sup>23</sup> For example, Western Power Distribution and WWU are jointly working on a RIIO-1 NIA project 'FREEDOM'; [http://www.smarternetworks.org/project/nia\\_wpd\\_023](http://www.smarternetworks.org/project/nia_wpd_023)

<sup>24</sup> As explained in Chapter 8, we will further consider the requirements imposed on network companies to jointly produce gas and electricity innovation strategies after we have decided on the composition of the overall innovation package (ie whether or not NIA will be retained).

whether the benefits to network consumers from these coordination activities would justify the additional payments to companies.

- 5.32 This possible mechanism would need to work coherently with the rest of the price control. There are already existing aspects of the price control which potentially cover this area. For example, the Network Access Policy (NAP) for electricity transmission networks to facilitate effective coordination, cooperation and communication between the TO and ESO on planning and agreeing network outages.
- 5.33 More generally, we are also considering the extent to which we should place additional incentives or obligations on the network operators to put certain classes of data into the public domain, building on business as usual expectations for data sharing, such as those in our current consultation on proposed electricity licence and guidance to support whole system outcomes.<sup>25</sup>

#### 4. *Balancing financial incentives between traditional and whole systems behaviour*

- 5.34 The totex incentive mechanism encourages networks to contract with other parties to undertake whole system solutions in operating their systems efficiently, if doing so can achieve their required outputs more cost-effectively within the price control. Companies have, however, highlighted instances where they can be disincentivised from acting in a more efficient whole system way.

#### **Case study: An illustration of how incentives can be unbalanced**

When considering whether to contract with another network company in delivering an output, both networks will assess any implications or potential trade-offs under their own price control arrangements.

Take the example where a network has a Price Control Deliverable to address a system need (meaning they only retain the revenue for the project if it is delivered), but learns that the system need could be addressed more cost effectively by another network. If the network were to contract with the other network to develop the alternative solution, they may be assessed as having not delivered the Price Control Deliverable and therefore be ineligible for the revenue.

Furthermore, where a solution involves multiple parties, concerns about coordination costs, limitations in transfers, or difficulties in allocating risk can also be a barrier to implementing that solution.

Finally, there may be limits on how some funding sources can be used or transferred, and the route to adopt alternative options may not be clear.

- 5.35 We are looking to develop an approach that balances incentives to encourage cost-effective coordination across network licensees. This could be by:
- *refining or formalising funding routes* – reviewing how methods of funding solutions between licensees, such as through ‘directly remunerated services’, are defined and any limitations of their use. Clarifying associated incentives or returns could also help, with appropriate visibility and conditions to ensure

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<sup>25</sup> <https://www.ofgem.gov.uk/publications-and-updates/consultation-licence-conditions-and-guidance-network-operators-support-efficient-coordinated-and-economical-whole-system>

conflicts are managed and costs are efficient. This includes where the ESO has identified the potential for a system need to be best met by a distribution solution. We are interested in views on how that solution is funded, and how any transfers would avoid double payments of a licensee for benefits.

- *establishing mechanisms to redefine or transfer outputs between licensees* – networks may identify that another party is best placed to efficiently manage a given output. This could be set at the outset of the price control, or through a 'whole system' focused reopener (see paragraph 5.36). Any changes should consider the appropriate assignment of roles and responsibilities, and ensure companies are not funded twice for a given action. They would also need to align with any policy on DSO, and coordination with the ESO.
- *ensure regulatory incentives support beneficial outcomes* – differences in price control incentives between licensees, or in the regulatory treatment of different types of solution, may distort incentives or create barriers for networks to cooperate on whole system solutions. Wider arrangements beyond the price control, such as connections and charging, can also have an effect. Addressing these may help ensure networks unlock greater benefits for network consumers, though some fall beyond the scope of the price control.<sup>26</sup>

#### 5. Ensuring the framework is able to flex to meet whole system needs

5.36 The price control has a range of mechanisms to address different uncertainties, including those arising through the forecasting and Business Planning process. We are interested in views on whether networks should be able to put forward uncertainty mechanisms that have a specific whole system focus. Our current thinking is that these would facilitate *coordinated re-openers* for projects which operate across multiple networks and were not identified through the Business Planning process. A coordinated reopener such as this would help to realign revenues and responsibilities for projects to be undertaken in more cost-effective ways, in the interests of network consumers.

5.37 To avoid creating an administratively burdensome and open-ended mechanism, an uncertainty mechanism like this would likely require a set window for triggering (for example, a halfway point through the price control).

#### 6. Whole system discretionary funding mechanism

5.38 There may be opportunities for networks to unlock whole system benefits through the delivery of projects or activities that were unclear or unknown when setting the price control. A discretionary mechanism that provided additional funding for these types of projects or activities could incentivise networks to think innovatively and push the boundaries of benefits they can help deliver to their consumers.

5.39 We propose that projects eligible for additional funding would need to demonstrate robust overall benefits for network consumers, in line with the 'broader' whole systems scope. To be eligible, the company would need to show

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<sup>26</sup> We are considering reforms to network charges through our work on Network access and forward-looking charging reform and the Targeted Charging Review (TCR). The access project is also considering reform options to improve cost-reflectivity, which should support efficient whole system outcomes, while the TCR is aiming to reduce the harmful distortions caused by the current residual charging arrangements. A key aim of these projects is to reduce distortions from different treatment between different types of user (including those at different voltages) of the electricity networks. We encourage respondents to highlight any barriers they identify in these areas.

that they had accounted for any other available funding routes, or reward streams, in developing their proposal.

- 5.40 As industry understanding of best practice develops, the minimum criteria could evolve, driving improvements in network performance over time.
- 5.41 We welcome views on the merits and feasibility of this option, in particular how this mechanism could generate benefits which a whole system uncertainty mechanism would not (see paragraph 5.36).

### **Enabling whole system solutions questions**

We welcome stakeholder views on our approach to enabling whole system solutions in RIIO-2, including:

- CSQ11. Do you have reasons and evidence to support or reject any of the possible mechanisms outlined in this chapter? Do you have views on how they should be designed to protect the interests of consumers?
- CSQ12. Which of the possible mechanisms we have outlined above could pose regulatory risk, such as additionality payments or incentivising the wrong behaviour?
- CSQ13. Are there obstacles to transferring revenues between networks that disincentivise those networks from using a coordinated solution (please give details and suggest any changes or solutions)?
- CSQ14. Can you recommend approaches that would better balance financial incentives between networks to enable whole system solutions?
- CSQ15. Are there other mechanisms that we have not identified that we should consider (please give details)?
- CSQ16. Are there any additional framework-level whole system barriers or unlocked benefits, and if so, any price control mechanisms to address these?
- CSQ17. Are there any sector specific whole system barriers or unlocked benefits, and if so, any sector specific price control mechanisms to address these?
- CSQ18. Which of the proposed mechanisms would be most suitable in circumstances where a broader definition of whole system is likely to deliver benefits to network consumers?

## 6. Ensuring future resilience

**The actions and investment the network companies undertake in RIIO-2 have to ensure the long-term safety, security and reliability of their networks.**

In this section we explain our proposed approach to asset resilience, including:

- the use of long-term monetised risk for justifying investments and for defining outputs,
- the high-level approach to setting outputs and allowances,
- the principles for dealing with over-delivery and under-delivery of outputs,
- interaction with other funding mechanisms and the potential ring-fencing of certain projects and activities.

In addition, we describe our proposed approach to ensuring networks can fulfil their obligations to ensure the physical security of their sites.

We will consider cyber resilience costs which are (1) efficiently incurred as a direct result of the introduction of the NIS Regulations, and (2) above 'business-as-usual' activities.

We intend to engage with the network operators to help ensure a stepped improvement in cyber resilience to enable prioritisation of cyber risk mitigation and establish a mind-set of enabling flexible and agile networks and systems for the future.

The future capability of the networks also relies upon having a workforce in place with the right skills. We expect networks to set out in their Business Plans their strategy for ensuring this is the case.

**Consultation questions:** We seek views on all of the issues raised in this chapter. We ask specific questions on our proposals to support asset resilience, workforce resilience, physical security and cyber resilience in the relevant sections of the chapter. In your response, please provide evidence and alternative proposals, where relevant. A full list of questions is available at Appendix 6.

### Introduction

- 6.1 Network companies have to provide safe, secure, reliable and efficient energy network services. The actions that they take in RIIO-2 should deliver these services for existing consumers, and safeguard the reliability of the network infrastructure and systems for future consumers.
- 6.2 In this chapter, we set out our proposal to ensure long-term asset resilience measures are in place. We describe how we expect companies to demonstrate their plans for workforce resilience, to ensure they have access to the range of skills that future network activities may require. We also describe how we propose to enable companies to meet their obligations in respect of the physical security of their sites and take the steps necessary to maintain and improve their cyber resilience.

### Asset resilience

#### Introduction

- 6.3 Network asset risk refers to the probability and impact of asset failure. Through their asset management activities such as replacement or refurbishment, network companies should ensure that the risk to consumers is maintained within



- reasonable bounds. This is an important part of the price control, because it contributes to a significant proportion of the network companies' totex<sup>27</sup> and consumers could suffer significant detriment if the pursuit of short-term profits leads to degradation of the quality of network assets. The consequences of such degradation would only become visible over much longer timeframes through interruptions to service or wider damages to public safety or the environment.
- 6.4 Due to the long operating life of network assets (greater than 40 years in many cases), the impact of any shortfall in asset management activities may not be directly observable in the short-term of a price control. So in addition to performance indicators such as energy not supplied (ENS), a lagging indicator of asset management over a lengthy period, we need measures that tell us on a forward-looking basis how prone network assets are to failure and with what consequences to consumers.
- 6.5 Over the past few price controls, we have worked with the industry through a range of output measures in this area such as asset age and condition indices, and progressed to the risk-based measures adopted in RIIO-1. In RIIO-1, the cost allowances were tied, where possible, to the delivery of part of the then Network Output Measures (NOMs) that reflected the levels of risk reduction that network companies should achieve. The way the asset risk is measured and incorporated into network companies' asset management decision-making has been developed further through RIIO-1. Our proposed RIIO-2 arrangements build on such progress.
- 6.6 The general proposals for RIIO-2 outlined below are intended to apply to the four network sectors (gas and electricity transmission and gas and electricity distribution). However, the detailed application may vary for some elements across the sectors. At this stage, we are not consulting on the application approach for electricity distribution, which is two years behind the other sectors in its regulatory cycle. Accordingly, further development and learning between now and the sector specific methodology development for RIIO-ED2 may lead to some changes in our approach. We will consult fully on the sector specific methodology prior to making any decisions on our approach for RIIO-ED2.
- 6.7 We do not intend to apply the proposals discussed in this section to the ESO, who does not own long-life physical assets. As the ESO price control is moving away from RAV based approach, we will address how the ESO manages its assets separately via its wider price control framework.

## Background

- 6.8 When we set outputs targets and allowances for RIIO-1, there were no common methodologies across the sectors to measure monetised network asset risks. We used a combination of quantitative and qualitative measures such as asset age, 'health' (indicating how likely they may be to fail) and 'criticality' (indicating how serious the consequence of failure might be). These parameters were combined so as to place assets into priority bands for intervention actions.
- 6.9 RIIO-1 output targets were set in terms of physical quantities in relevant priority bands for individual asset categories. Two different approaches were taken across the four sectors for defining the required outputs. The transmission sectors were set 'absolute' targets, ie the quantities of assets remaining in high priority bands at the end of RIIO-1 to be no more than the set levels. The distribution sectors

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<sup>27</sup> These allowances represent around 1/3 of totex allowances for all companies combined.

- were set 'relative' targets, i.e. the quantities of assets being moved away from the high priority bands by the end of RIIO-1 to be no less than the set levels.
- 6.10 Cost allowances were set on the basis of assessed efficient costs for delivering the relevant underlying work programmes for both absolute and relative targets.
- 6.11 This approach had the following limitations:
- It was difficult to compare different types of assets on a like-for-like basis. For example, while two transformers of the same type and priority band were expected to contain similar level of risks, it was difficult to tell how the risks would compare to those contained in a unit length of overhead line belonging to the same priority band.
  - It was difficult to assess how the intervention priority reflected the value of intervention to consumers, and how it compared against the cost of the intervention. This limited our ability to establish appropriate levels of outputs and associated costs. For example, it was difficult to estimate whether it was of better value to consumers to pay more for removing a greater amount of risk or vice versa.
- 6.12 During the course of RIIO-1, the network companies in each of the four sectors have developed and implemented common methodology to convert the risk measure into monetised terms<sup>28</sup>. This is the multiplication of the probability of asset failure by the monetised value of the consequences of the failure (e.g. the value of interruption to supply or cost of damage to the environment). As an output measure, monetised risk helps overcome the limitations of using physical quantities of assets in priority bands by:
- defining asset risk in accordance with a common currency for all network assets, enabling meaningful comparison and prioritisation across the full asset base, and
  - expressing in monetary terms the expected direct and indirect consequences for consumers of asset failures, enabling a balance between costs and benefits.
- 6.13 In our March RIIO-2 Framework consultation<sup>29</sup>, we stated that for "*RIIO-2, we expect network companies' investment plans, as well as our regulatory arrangements, to be driven more explicitly by the balance between cost of asset intervention and the developed output measures that reflect long-term consumer value*".
- 6.14 Since the consultation we have been developing our thinking in these areas with stakeholders and have set up a working group to inform our views on:
- RIIO-2 Business Plan submission requirements
  - Our Business Plan assessment approaches
  - The RIIO-2 incentive framework
  - Performance monitoring throughout RIIO-2.
- 6.15 The working group consists of representatives from Ofgem and all network companies, as well as third party stakeholders.

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<sup>28</sup> All network companies have or are currently engaged in a "rebasings" exercise to convert their RIIO-1 targets that were originally expressed as physical volumes into equivalent monetised risk targets.

<sup>29</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/03/riio2\\_march\\_consultation\\_document\\_final\\_v1.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/03/riio2_march_consultation_document_final_v1.pdf)

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## **Our proposed approach for RIIO-2**

6.16 For RIIO-2, we propose to build on the progress made in RIIO-1 and use monetised risk – we term it the Network Asset Risk Metric (NARM) – as the primary measure for defining the output targets and setting allowances associated with asset resilience. We expect companies to provide us with good quality information in their Business Plans to support this. We also propose to apply penalties to companies if they fail to deliver against their targets.

### Scope of the NARM

6.17 Effective asset management involves renewal and maintenance of all network assets. However, monetisation of asset risk depends on the collection and verification of relevant data through time and the NARM at present only covers most of the primary transmission and distribution assets on energy networks.

6.18 The asset categories covered by the NARM vary across sectors and sometimes across companies within sectors.

6.19 For the gas and electricity transmission and gas distribution sectors, we propose that the NARM mechanisms for RIIO-2 will apply only to the asset categories within the scope of the current NOMs mechanisms as set out in relevant licence conditions. We do not intend to bring other assets (such as protection and control assets in electricity transmission) within the scope of the NARM ahead of the RIIO-2 Business Plan submission.

6.20 For electricity distribution, we have started working with DNOs to achieve more alignment across the companies ahead of RIIO-ED2, and to explore the possibility of extending the scope of the NARM to a wider asset base. The outcome of this work will be reflected in RIIO-ED2 proposals in due course.

6.21 We intend to explore the possibility of extending the scope of the NARM on a sector-by-sector basis during the course of RIIO-2 as and when relevant data become available and the methodology to calculate the monetised risk is developed.

6.22 Asset management works that are out of scope of the NARM will be subject to separate assessment, funding and output arrangements, depending on their drivers and deliverables. We will develop relevant approaches for specific sectors.

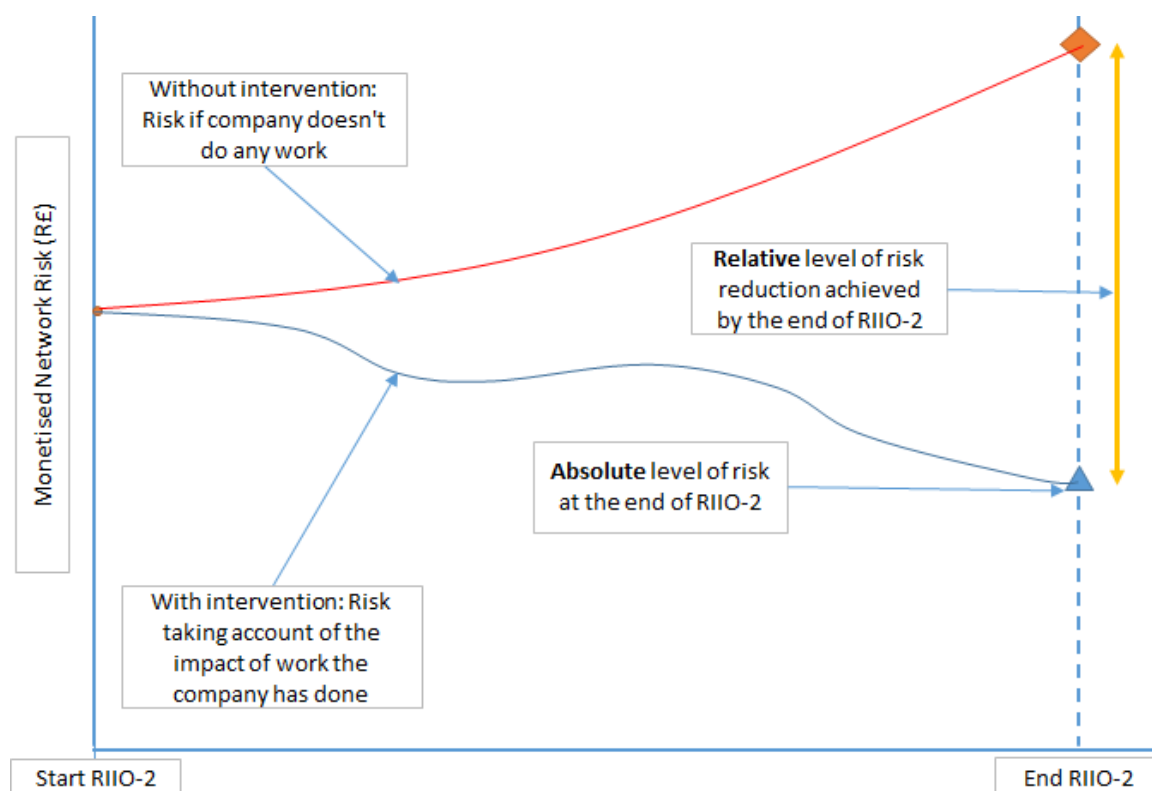
### Definition of the NARM

6.23 For RIIO-2, we propose applying consistent approaches across all four sectors, using monetised risk to define outputs for the relevant assets. It is important that we consider both absolute and relative risk when setting the outputs as they communicate different information:

- Absolute level of risk – indicates the total level of long term network asset risk at a given time, which is the overall effect of a company’s expenditure and other factors outside of the company’s control (such as assets deteriorating slower or faster than expected).
- Relative level of risk reduction – indicates the risk reduction benefits that companies deliver through their asset management work.

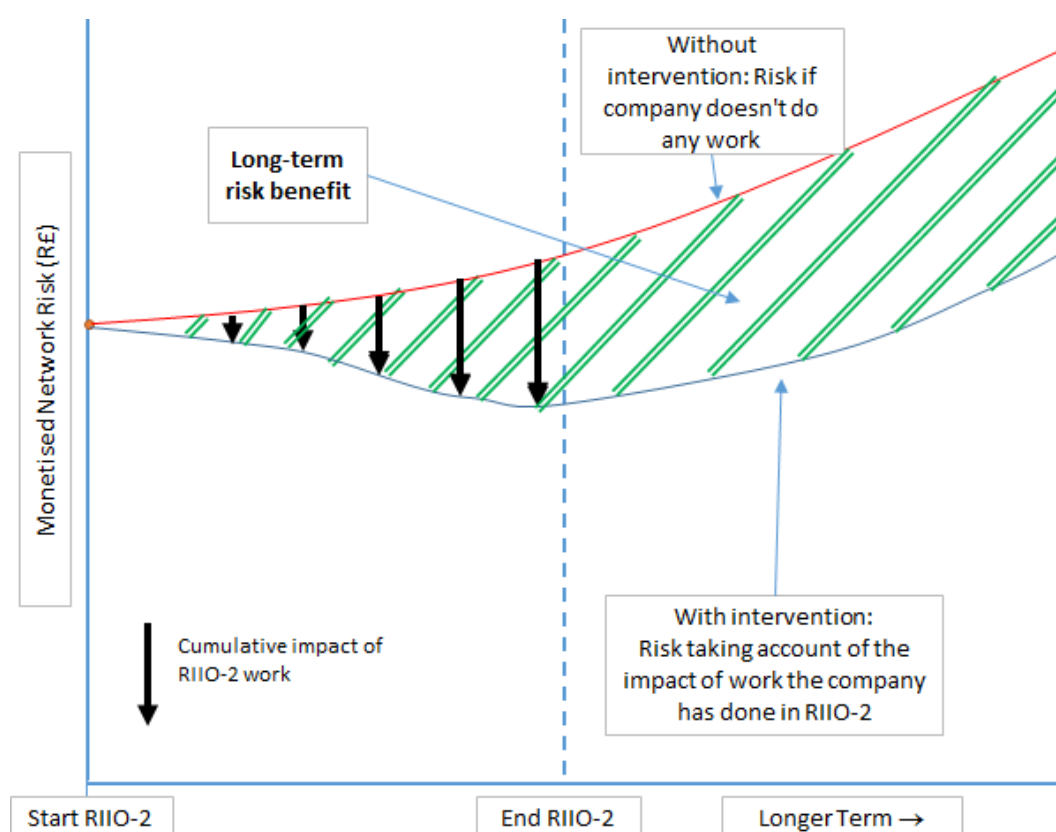
6.24 Figure 1 below illustrates how the absolute and relative risk metrics relate to each other.

**Figure 1: Relationship between absolute and relative risks**



- 6.25 These two measures can, in theory, be converted to each other. However, a relative measure has a more direct link between allowances and the work required to deliver outputs. It is also less affected by extraneous factors such as the change of risk levels in the wider network asset base that are unrelated to intervention activities. We therefore propose for all sectors that their outputs will be defined using a relative measure of monetised risk.
- 6.26 In RIIO-1, monetised risk outputs are calculated for the final year 'snapshot' of risk, although the companies are expected to take into account longer-term risks when carrying out trade-offs between different asset categories or justifying over- or under-delivery. In defining RIIO-2 outputs, we consider that the full value to consumers of a company's work should be captured by taking a longer-term view. We therefore propose that the relative output measure should take account of the long-term benefit of the work that the companies are funded to do during RIIO-2 through the estimated present value of future benefits.
- 6.27 Figure 2 below illustrates this long-term benefit concept. In this simplified illustration, the long-term benefit is represented by the hatched area between the risk curve of the counterfactual (which, for illustrative purposes, is shown as 'without intervention') and that after an intervention.

Figure 2: Illustration of long-term risk benefits



6.28 We intend to work with licensees and other stakeholders during the consultation period to work out the approach to estimating the long-term benefits. This would include the following aspects:

- What the counterfactual should be. It is unrealistic to assume that an asset will deteriorate in perpetuity if there is no intervention – at some point in time the asset will fail or a point will be reached where intervention will have to take place;
- Over what time period(s) we should consider long-term benefits;
- How future uncertainties should be taken account of, and
- How we calculate the present value of future benefits.

### Asset resilience questions

We welcome stakeholder views on our approach to asset resilience in RIIO-2, including:

- CSQ19. Do you agree with our proposals to use monetised risk as the primary basis for network companies to justify their investment proposals for their asset management activities?
- CSQ20. Do you agree with our proposals to define outputs for all sectors using a relative measure of risk?
- CSQ21. Do you agree with our proposals for defining outputs using a long-term measure of the monetised risk benefit delivered through companies' investments?

### Setting cost allowances and output targets

- 6.29 In RIIO-1, we set outputs to reflect the outcome of the companies' allowed expenditure and workload. In RIIO-2, we propose to require companies to use the monetised risk outputs as the primary means of justifying their workloads and levels of expenditure. We would similarly use monetised risk to assess the companies' Business Plans and set allowances and outputs. This may be supplemented by cross-checking against other information, such as asset age and condition data.
- 6.30 We expect companies to set out their longer-term objectives for monetised risk in their Business Plans<sup>30</sup> by:
- setting monetised risk objectives that are informed by stakeholder engagement including appropriate understanding of consumers' willingness to pay. Utilising monetised risk should help stakeholders better understand the benefits of companies' proposals and therefore lead to more meaningful engagement.
  - considering the long-term costs and benefits of their investment options. Companies need to carry out CBA to demonstrate that they have selected investment options that efficiently meet their stakeholder-driven objectives and deliver sufficient net benefits for consumers.
- 6.31 We intend to use monetised risk as part of our Business Plan assessment to:
- benchmark the companies' proposals
  - ensure that allowances are efficient and deliver value for consumers
  - set outputs that can be used to hold companies to account for their investment decisions.

### Work programme spanning across price controls

- 6.32 Some asset intervention work may need to start in one price control period but will only deliver an output on completion in the next period. Delay or cancellation of such work would not show as a shortfall in output in the first period. In considering funding arrangements, we need to ensure that consumers do not pay for work that does not deliver any benefits within the first price control period, or end up paying twice later, while still ensuring that companies are properly funded for necessary work and are incentivised to optimise the timing of delivery.
- 6.33 We are currently considering the following options for funding these types of projects:
- Option 1: allow costs in RIIO-2 only for outputs delivered in RIIO-2. Any expenditure in RIIO-2 on outputs for delivery in RIIO-3 would be logged up and considered for funding in the next price control;
  - Options 2: provide a fixed pot of money in RIIO-2 for funding outputs to be delivered in RIIO-3, carry out a true-up at the end of RIIO-2 and reflect this in funding for RIIO-3.
- 6.34 The first option is similar to some of the volume drivers we use in RIIO-1. With these mechanisms, regulatory funding is provided upon delivery of an output

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<sup>30</sup> A longer-term objective might be, for example, to maintain risk at current absolute levels or to reduce it by 10% over the next twenty years.

(such as additional volume of generation connected) and takes into account financial costs based on a typical project cost profile. In our stakeholder discussions, concerns were raised about the delay of regulatory funding for required work and the potential distorting impact this might have on the timing of asset intervention.

- 6.35 The second option provides some bridging funding for projects that will deliver outputs in RIIO-3 and would be subject to a true-up as part of RIIO-2 closeout and RIIO-3 allowance and output target setting.
- 6.36 We welcome views on the practicality and implications of the above options, as well as suggestions on alternative funding models for such work.

### **Asset resilience questions**

We welcome stakeholder views on our approach to asset resilience in RIIO-2, including:

CSQ22. Do you agree with our proposed approach to setting allowances and outputs?

CSQ23. Do you have views on the proposed options for the funding of work programme spanning across price control periods?

### Dealing with deviation of delivery from output targets

- 6.37 In RIIO-1, we recognised the limitations of setting ex ante allowances and outputs over a price control period. We therefore provided scope to adjust funding and incentivise justified over-delivery and under-delivery. Companies are made cost-neutral at the end of RIIO-1 for any over-delivery or under-delivery during the period.<sup>31</sup> Additionally, if the over-delivery was justified then the company is financially rewarded. Where under-delivery is unjustified, it receives a financial penalty.
- 6.38 For RIIO-2, we aim to simplify the incentive mechanism and ensure that any funding and incentive adjustments are more aligned with the consumer value (represented by monetised risk) that the companies deliver through their investments.
- 6.39 We consider that the use of monetised risk is a more explicit balance between costs and benefits to justify licensees' RIIO-2 Business Plans, combined with a shorter control period, mean that there should be greater confidence in setting baseline outputs that are more reflective of consumer value. Therefore, we would expect the licensees to take responsibility for developing robust Business Plans and delivering the target level of benefits to consumers.
- 6.40 Where a company fails to deliver its output target, we propose that it will lose the associated cost allowances. If the company fails to justify its under-delivery, we propose that it will be penalised by an amount equivalent to the monetised risk benefit that consumers have lost as a result of the under-delivery in excess of the cost allowances clawed back.

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<sup>31</sup> This means that where a company incurs costs due to over-delivery, it will receive additional revenue after RIIO-1 ends to cover the additional cost it has incurred. Similarly, if the company saves money by under-delivering, it will lose revenue after RIIO-1 ends to ensure that consumers do not pay for work that was not delivered.

- 6.41 We expect licensees taking responsibility for their Business Plans to mean that they should be exposed, under the totex incentive mechanism, to the cost of delivering more than their output targets. However, where there is material consumer value to justify delivering more than the targets, we propose to consider relevant criteria and options for maintaining cost neutrality.
- 6.42 We invite views on all of the above proposals for dealing with deviation of delivery from targets.

#### Interaction with other funding mechanisms

- 6.43 When we assess a company's monetised risk output delivery, we propose to discount any activities that are funded through other mechanisms and impact monetised risk. This would include load related projects that also involve asset replacement and should help to avoid double funding.
- 6.44 Interaction with other funding mechanisms for each sector is further explained in the relevant Sector Annex.

#### Ring-fenced projects and activities

- 6.45 We consider that it may be appropriate to treat certain projects or activities separately from the NARM mechanism even if they contribute monetised risk benefits. For example, certain projects can be:
- needed due to drivers other than management of the NARM defined asset risk (e.g. the gas distribution HSE mandated iron mains repex programme); or
  - very high value standalone projects.
- 6.46 For such projects and activities, we propose to consider ring-fencing them with separate funding and PCDs, and discount the monetised risk benefit they deliver from any NARM output delivery.
- 6.47 We welcome views on the type of project or activity that could be ring-fenced for these purposes.

### **Asset resilience questions**

We welcome stakeholder views on our approach to asset resilience in RIIO-2, including:

- CSQ24. Do you have any views on the options and proposals for dealing with deviation of delivery from output targets?
- CSQ25. Do you have any views on the interaction of the NARM mechanism with other funding mechanisms?
- CSQ26. Do you have any views on ring-fencing of certain projects and activities with separate funding and PCDs? Do you have any views on the type of project or activity that might be ring-fenced for these purposes?

## **Workforce resilience**

### **Introduction**

- 6.48 Resilience is not just about network assets; it is also about the people and processes put in place to build, operate, repair and maintain those assets, particularly when networks are under stress. Human resources with the right skills



are essential to the safe and reliable operation of a network, without which the ability to deliver the services expected by customers would rapidly deteriorate. Workforce resilience is about ensuring companies establish and maintain a sustainable pipeline of the technical skills that are vital to maintaining the level of service customers expect over the longer term.

### **Feedback received on RIIO-2 Framework decision**

6.49 In response to our RIIO-2 Framework consultation, both the Energy and Utilities Skills Groups and Trade Unions highlighted the skills shortage facing the industry. They asked us to consider measures to ensure that energy companies' workforces have the necessary skills and resources to continue delivering the service expected by consumers over the long term. We agreed to consider this as part of the sector-specific methodologies.

### **Concerns over workforce resilience**

6.50 We are aware of the increasing challenge for network companies in accessing the specialist technical/engineering skills they need to develop, construct, maintain and operate their networks. For example, the [Workforce Energy and Utilities Workforce Renewal and Skills Strategy: 2020](#)<sup>32</sup> estimates that over 220,000 new recruits will be required across the energy and utilities sector by 2027. This suggests that a third of vacancies in the energy and utilities sector are now 'hard to fill'. Utilities are struggling to attract the skills they need.

6.51 Recruitment and retention of the right skills needed by the sector is increasingly challenging, driven, amongst other things, by:

- ongoing redundancy programmes and limited recruitment / training over the years, which has contributed to the lack of available skills in the sector
- age demographics, which mean that large numbers of the skilled resources vital to current service delivery will retire from the industry over the next ten years
- not enough school / college leavers and graduates with Science, Technology, Engineering and Maths (STEM) qualifications entering the industry
- lack of diversity, which makes the sector less attractive to people from different backgrounds
- record low unemployment levels and increasing demand for technical skills, which are driving up labour costs
- the energy and utilities sector not being seen as attractive to school-leavers and graduates
- competition from other sectors and major infrastructure projects: e.g. HS2/Rail, Hinkley Point C, Crossrail 2, Heathrow R3 etc.

6.52 While some of these issues are within the control of network companies, the more extraneous factors could potentially create uncertainties that are more difficult to plan for and manage.

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<sup>32</sup> Energy & Utilities Skills Partnership, 2017

## **Our proposed approach for RIIO-2**

- 6.53 Ofgem acknowledges the increasing challenge facing network companies in attracting, developing and retaining a sustainable workforce with the technical skills they need to run their businesses effectively. Failure to invest in these skills could ultimately result in networks becoming less reliable and more costly to operate in the future.
- 6.54 However, tackling these issues is firmly the responsibility of network companies. They need to establish and implement a strategy to ensure a sustainable pipeline of skilled resources in sufficient quantities and at reasonable costs to deliver the services their customers expect over the longer term.
- 6.55 We therefore expect companies to submit a sustainable workforce strategy as part of their wider Business Plans under RIIO-2, taking on board any input from the company's User Groups, Customer Engagement Groups and Ofgem's Consumer Challenge Group.
- 6.56 Such plans should identify the areas where attracting and retaining skilled personnel is becoming increasingly challenging. They should demonstrate how existing approaches to recruitment and retention in these areas need to be improved to address this challenge.
- 6.57 Where this involves upward pressure on pay and benefits, this would need to be justified against historical benchmarks supported by robust evidence of market trends for these skills going forward. Where extraneous factors introduce risks that companies cannot manage themselves, these should be explained with supporting evidence. Uncertainty in this area could be addressed through indexation of Real Price Effects (RPEs) which is discussed in more detail in Appendix 1.
- 6.58 Where this involves recruiting increased numbers over and above those required to operate efficiently in the shorter term (e.g. additional apprenticeships / technical graduates), the longer-term benefits of such recruitment should be clearly evidenced.
- 6.59 We also encourage companies to collaborate to establish a common approach to encouraging school leavers/college leavers/technical graduates into the industry, possibly involving the creation of dedicated technical academies for developing key utility skills.
- 6.60 The companies' Business Plans in relation to workforce strategy should not only cover the RIIO-2 period, but should extend out at least another 10 years to consider workforce resilience over the longer term. These are likely to target both the direct workforce and supply chains, reflecting the level of work the network companies plan to outsource. We would expect these plans to ensure a future workforce which better reflects the diversity of the communities they serve. We also expect plans to promote multi-skilling, increased productivity and the more advanced technology skills needed to support the energy system transition.
- 6.61 The focus of these arrangements are the field-based technical skills needed by companies for building, maintaining, and repairing network assets and the associated monitoring, protection and control systems. While the ESO will have similar challenges in attracting and retaining the skills they need to operate the system, we consider this separate to the workforce resilience issue addressed

here, but the ESO should reflect on its unique resource challenges in its own Business Plan submission.

- 6.62 Ofgem will challenge and benchmark these plans, where data is available, to ensure they are robust, proportionate and efficient. Efficient costs for workforce resilience that can be demonstrated against a clear evidence base could then be funded as part of the RIIO-2 revenue allowances.

#### Measuring delivery

- 6.63 Ideally, it would be possible to establish a measure of workforce resilience as we have established for network resilience. This would enable Ofgem to hold companies to account for maintaining and sustaining the skills they need to operate effectively. However, it is not clear what this measure might look like. There is a risk that setting such an output measure could distort/constrain optimal resourcing decisions, and may not therefore be appropriate.
- 6.64 One approach may be for individual networks to put forward milestones and measures as part of their sustainable workforce strategy, with delivery then measured against these. An incentive could be developed with networks reporting annually on their progress against these plans with funding adjusted to reflect progress. We are therefore interested in views on potential approaches.

#### **Workforce resilience question**

We welcome stakeholder views on our approach to workforce resilience in RIIO-2, including:

- CSQ27. Where companies include a sustainable workforce strategy as part of their Business Plans, what measures do you think could be established to hold companies to account for delivering these plans, without distorting optimal resourcing decisions?

## **Physical security**

### **Background**

- 6.65 As owners of electricity and gas transmission and distribution assets in Great Britain, the network operators licensed by Ofgem are responsible for a number of assets that are deemed by government as Critical National Infrastructure (CNI).
- 6.66 Working with the responsible government department, ie the Department for Business, Energy and Industrial Strategy (BEIS), network operators agree and implement the Physical Security Upgrade Programme (PSUP), which involves measures required to enhance physical security at CNI sites.

### **RIIO-1 approach**

- 6.67 At the time of setting the RIIO-T1 and RIIO-GD1 price controls in 2013, there was some uncertainty about the list of sites that required security upgrades and the scope of works required at each site. As a result, we did not include an allowance for the PSUP programme in the baseline allowances. Instead, we created an uncertainty mechanism, ie a reopener, to provide an opportunity for companies to make applications for additional funding when there was greater certainty about the work required and the costs. There were two reopener windows: May 2015 and May 2018.

6.68 We allowed a total of £380m (2009/2010 price base) for NGET and NGGT and £101m (2009/2010 price base) for the GDNs (Cadent, SGN and WWU) across the 2015<sup>33</sup> and 2018<sup>34</sup> re-openers for specific sites that were classified as CNI by government.

### **Our proposed approach for RIIO-2**

6.69 We think the Government requirements for PSUP are now clear and the majority of the required investment is expected to be completed by the end of RIIO-1. However, there may be some additional works required in RIIO-2 and therefore, we will consider allowing ex ante funding for investment (including the ESO, if required) that is mandated under the PSUP. We expect companies to submit these costs as part of their Business Plans, as a (confidential) Price Control Deliverable.

6.70 We expect companies to be able to manage the costs of this work during the price control period. However, we recognise that changes in government policy during the price control could result in changes to the investment required for PSUP. Therefore, for RIIO-2, we are considering including a reopener to adjust allowed revenue (either upwards or downwards) if government mandates changes to the scope of the enhanced physical site security work required during the period.

### **Physical security questions**

We welcome stakeholder views on our approach to physical security in RIIO-2, including:

CSQ28. Do you agree with maintaining the existing scope of costs that fall under Physical Security, ie costs associated with the PSUP works mandated by government? Please explain your reasons and suggest alternative definitions you believe should be considered.

CSQ29. Do you agree with our proposed approach of ex ante allowances for PSUP works mandated by government? Please explain your reasons and suggest alternative approaches you believe should be considered.

CSQ30. Do you agree with our proposal to include a reopener mechanism to deal with costs associated with changes in investment required due to government-mandated changes to the PSUP?

CSQ31. We would also welcome views on the frequency that is required for any reopener, e.g. should there be one window for applications during RIIO-2 and, if so, when?

## **Cyber resilience**

### **Background**

6.71 The Network and Information Systems Regulations 2018 ('NIS Regulations') implement Directive (EU) 2016/1148 of the European Parliament and of the Council concerning measures for a high common level of security of network and information systems across the Union, and designate GEMA and BEIS as the joint

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<sup>33</sup> <https://www.ofgem.gov.uk/publications-and-updates/decision-tpcr4-cost-reviews-and-riio-t1gd1-uncertainty-mechanisms-enhanced-security-upgrades>

<sup>34</sup> <https://www.ofgem.gov.uk/publications-and-updates/decision-riio-1-price-control-reopeners-may-2018>

- Competent Authority ('CA') for the electricity and downstream gas sectors in Great Britain.
- 6.72 The aim of the NIS Regulations is to increase the overall cyber security and cyber resilience of Operators of Essential Services<sup>35</sup> (OES), in relation to the network and information systems that support the delivery of essential services. The role of the CA is to carry out the duties mentioned in regulation 3(3), (4) and (6) of the NIS Regulations, which include reviewing the application of the Regulations.
- 6.73 Under Regulation 10 of the NIS Regulations<sup>36</sup>, OES must take appropriate and proportionate technical and organisational cyber security measures to manage risks posed to the security of the network and information systems on which their essential service depends, and to prevent and minimise the impact of incidents on these essential services.
- 6.74 The National Cyber Security Centre ('NCSC') has developed a sector-agnostic Cyber Assessment Framework ('CAF') to assist operators covered by the NIS Regulations in achieving compliance. Ofgem has also published guidance<sup>37</sup> to support OES in complying with the Regulations.
- 6.75 Each OES is expected to perform a self-assessment against the CAF in the coming months and propose what short-to-medium term cyber-security measures they consider proportionate and appropriate to manage risks identified. These will form part of an improvement plan to be submitted to Ofgem for approval in its role as joint CA. We intend to establish a comprehensive audit and inspection regime to monitor the delivery of these improvement plans.

### **RIIO-1 approach**

- 6.76 In May 2018, National Grid (NG) submitted reopener applications for funding to enhance the security of IT systems operated by it in its role as the gas and electricity systems operator.
- 6.77 As part of our decision<sup>38</sup> on the reopener applications, we allowed £107.1m in funding (2009/2010 price base), of which £36.4m was for cyber enhancements. We linked that funding for these enhancements to the delivery of clear outputs set out in NG's reopener applications and required it to report on its progress with regards to delivering those outputs. We expect these outputs to be delivered by 2021.
- 6.78 We also reserved the right, as part of the close-out process for the RIIO-T1 price control, to recover any allowances provided as part of the reopener if these outputs are not delivered. Ofgem has developed a template that will be used to monitor on a six-monthly basis the delivery and efficiencies of the outputs. Effectiveness of delivery will be monitored as part of an audit and inspection regime.
- 6.79 Under RIIO-GD1 and ED1, companies were provided with ex ante allowances for general resilience work, which included cyber. Any over/underspend against

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<sup>35</sup> OES are those gas and electricity operators which are determined by thresholds defined in the NIS Regulations and those determined by BEIS.

<sup>36</sup> <https://www.legislation.gov.uk/ukxi/2018/506/made>

<sup>37</sup> [Ofgem Competent Authority Guidance for Downstream Gas and Electricity in Great Britain](#)

<sup>38</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/09/enhanced\\_security\\_costs\\_decision\\_document.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/09/enhanced_security_costs_decision_document.pdf)

allowances pass through the Totex Incentive Mechanism. At the close out of these price controls, Ofgem will assess the companies spend against these allowances.

### **The Competent Authority's proposed approach**

- 6.80 In addition to the self-assessment against the CAF described above, we require network companies in all sectors (including electricity distribution) and the ESO to develop and submit strategic investment plans for cyber resilience to Ofgem in its role as joint CA (separate from RIIO-2 Business Plans). We expect these plans to set out the steps network companies propose to take to comply with the NIS Regulations during RIIO-2 and beyond. As joint CA, we plan to publish detailed guidance by June 2019 to inform the development of these strategic investment plans. This guidance will contain details about the criteria that will be used to assess these plans.
- 6.81 We are proposing that these plans use a risk-based approach and be demonstrably efficient, appropriate and proportionate. These plans must:
- Consider the cost of additional security measures against the consumer
  - Consider the economic and societal impacts of a cyber-incident
  - Provide all of the necessary information to allow us to take a view on the proposed security measures, including the needs case, the range of options considered and the efficient costs of delivery.
- 6.82 We will assess the strategic plans considering whether the measures proposed to meet the security requirements of the NIS Regulations are appropriate, proportionate and efficient.
- 6.83 These strategic plans must allow us to assess and take a view on the how the proposed investments meet the requirements set out in the detailed guidance. Any allowances provided under RIIO-2 will be based on this assessment.

### **Our proposed approach for RIIO-2**

- 6.84 For RIIO-2, for the ET, GT, GD and ESO, we propose to consider cyber resilience costs which are (1) efficiently incurred as a direct result of the introduction of the NIS Regulations, and (2) above 'business-as-usual' activities.
- 6.85 Based on our engagement with operators since May 2018, we anticipate that some network operators may not be in a position to submit their strategic investment plans to the joint CA (Ofgem) in time to feed into their RIIO-2 Business Plans (due in December 2019). Given we are considering basing RIIO-2 allowances on these strategic investment plans, where network operators are not able to submit their strategic plans by December 2019 we propose that funding for these operators could be considered through a reopener mechanism.
- 6.86 For companies who submit a strategic investment plan by December 2019 our initial view is to provide funding for cyber resilience costs through an ex ante 'use-it or lose-it' allowance due to the uncertainty of the required investment, the associated costs and the rapidly evolving cyber security landscape.
- 6.87 We propose that Ofgem will monitor the delivery of these strategic investment plans in the same way as in RIIO-1, described in paragraph 6.86 above, to ensure appropriate and proportionate security measures are being put in place and to inform where any funding adjustments may be required. For example, deviation

from the plans without Ofgem's approval may result in an 'claw back' of associated ex ante funding that was provided.

- 6.88 We also propose the reopener considers cyber resilience investment requirements which may emerge from changes in the regulatory and/or risk landscape during RIIO-2, for example current proposals for a European Network Code for Cybersecurity<sup>39</sup>. This reopener would be available to all network operators.

### **Cyber resilience questions**

We welcome stakeholder views on our approach to cyber resilience in RIIO-2, including:

- CSQ32. Do you agree with the scope of costs that are proposed to fall under cyber resilience, i.e. costs for cyber resilience which are (1) incurred as a direct result of the introduction of the NIS Regulations, and (2) above 'business-as-usual' activities? Please explain your reasons and suggest further or alternative costs you believe should be considered.
- CSQ33. Do you agree with our proposed approach of ex ante 'use-it or lose-it' allowances? Please explain your reasons and suggest alternative approaches you believe should be considered.
- CSQ34. Do you agree with our proposal to include a re-opener mechanism for cyber resilience costs? Please also provide your views on the design of the re-opener mechanism.

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<sup>39</sup> [https://ec.europa.eu/energy/sites/ener/files/sgtf\\_eq2\\_2nd\\_interim\\_report\\_final.pdf](https://ec.europa.eu/energy/sites/ener/files/sgtf_eq2_2nd_interim_report_final.pdf)

## 7. Managing uncertainty

**The pace of change within – and range of possible futures for – the energy system increases the risk that many assumptions we make at the time of setting the price control will prove to be wrong.**

In this section, we describe our proposed approach to designing a price control that can flex to accommodate a range of different future scenarios and to protect consumers and investors against the risks of stranded investment.

Under the five-year price controls, we propose to use uncertainty mechanisms to reduce the reliance on a fixed forecast, and instead allow revenues and targets to adjust to changes. Our view is that this will include a greater use of indexation, such as for Real Price Effects.

We also set out our proposals to address the risks of asset stranding. We would expect new investments to be justified by probabilistic cost benefit analysis, but we do not propose to introduce an asset utilisation incentive. For more anticipatory investment, we propose to establish new governance arrangements that would provide input on strategic direction. We are also interested in exploring potential arrangements where more of the risk is shared by network companies and their investors.

We believe our approach will allow for sufficient flexibility in the RIIO-2 price controls to support the networks' contribution to the delivery of government's energy strategy at the lowest cost to consumers.

**Consultation questions:** We seek views on all of the issues raised in this chapter. In the relevant sections of the chapter we ask specific questions on our proposals to manage the risk of asset stranding and our approach to anticipatory investment. In your response, please provide evidence and alternative proposals, where relevant. A full list of questions is available at Appendix 6.

### Introduction

- 7.1 The RIIO price controls operate on the basis of setting allowances and targets for a future period, with incentives on companies to outperform these. We believe this approach delivers benefits by encouraging companies to find more efficient ways of operating their businesses.
- 7.2 There is an inherent risk associated with this approach however, and this is our reliance on assumptions as to what will happen in the future. Growth in demand for network services may come faster or slower than we expect. In setting the price control, we need to understand how it can adapt to these changes, and also how we can ensure that consumers are protected from risks associated with predicting the future.
- 7.3 In this chapter we discuss our proposals for a range of tools to manage uncertainty and allow the price control to be reactive to changes (uncertainty mechanisms). We also discuss how we propose to manage the risk of assets being built that turn out not to be needed (managing stranding risks).

### Uncertainty mechanisms

#### Introduction

- 7.4 Forecasting costs and outputs with confidence for the duration of a price control is challenging. Uncertainty in cost forecasts can arise for several reasons, including



whether a network company needs to conduct an activity or make an investment, the amount of an activity they need to conduct, as well as the cost of the activity. Uncertainty over outputs that a company is required to deliver can also arise, for example, from changes in legislation or government policy.

- 7.5 Our RIIO-2 Framework decision to move to a five-year price control period significantly shortens the period over which we need to make forecasts. However, it is possible that even within a five-year period there is significant variation from our base case planning assumptions.
- 7.6 If this uncertainty is outside of the companies' control and has the potential to affect significantly their expenditure, then the use of an 'uncertainty mechanism' may be appropriate. Uncertainty mechanisms 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.
- 7.7 For RIIO-2 we are proposing a range of uncertainty mechanisms 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 strategic wider works mechanism we used in RIIO-1 electricity);
  - where there is uncertainty as to evolution of quantities or demand, we propose to use volume drivers;
  - 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).
- 7.8 Depending on the nature of the uncertainty, some of these mechanisms are common across all sectors; others are either sector-specific or shared across some (but not all) sectors.

### Cross-sector uncertainty mechanisms

- 7.9 Table 1 lists those existing mechanisms that we are consulting on retaining or removing and new mechanisms we are considering introducing for RIIO-2.

**Table 1: Cross-sector uncertainty mechanisms**

Name of uncertainty mechanism	Where addressed in this document
<b>Existing RIIO-1 cross sector uncertainty mechanisms</b>	
Ofgem licence fee	Propose to retain
Business rates	Propose to retain
Inflation indexation of RAV and allowed return	See Finance annex for details
Cost of debt indexation	See Finance annex for details
Tax (trigger and clawback)	See Finance annex for details
Pensions (established deficit, pension scheme administration and Pension Protection Fund levy)	See Finance annex for details

Enhanced physical site security	See Chapter 6 for details
Innovation Roll-out Mechanism	See Chapter 8 for details
<b>Potential new RIIO-2 cross-sector uncertainty mechanisms</b>	
Cost of equity indexation	See Finance annex for details
Tax	See Finance annex for details
Cashflow floor	See Finance annex for details
Real Price Effects	See Appendix 1 for details
Cyber resilience	See Chapter 6 for details
Whole systems	See Chapter 5 for details

### Sector-specific uncertainty mechanisms

- 7.10 In the sector-specific Annexes, we set out our views on the existing RIIO-1 sector-specific uncertainty mechanisms, along with any proposals for additional sector-specific mechanisms for RIIO-2.
- 7.11 As part of their Business Plans, network companies can also propose additional uncertainty mechanisms. Where they choose to do so, we expect them to justify why the proposed mechanism is appropriate and the benefits it would provide to consumers. Our Business Planning guidance sets out the type of information we might expect to see accompany any proposal for an uncertainty mechanism.
- 7.12 In assessing the need for additional uncertainty mechanisms, we will be mindful of our intention to simplify the price control and focus on those areas of most benefit to consumers. Too many uncertainty mechanisms can add complexity to the framework and make it unwieldy to operate. Moreover, there may be benefit in the consistent application of mechanisms across networks in the same sector. When implementing uncertainty mechanisms, we will adopt processes that minimise burden whilst ensuring appropriate outcomes, incorporating lessons from RIIO-1. For example, in the case of re-openers, having a process that ensures submissions are of sufficiently high quality to allow us to carry out an assessment within a reasonable timescale and undertake a meaningful consultation with stakeholders.

### Real Price Effects

- 7.13 We set price control allowances including the difference between our general inflation measure and certain input price indices that reflect the external pressure on companies' costs. We refer to these differences as Real Price Effects (RPEs).<sup>40</sup> In RIIO-2, we propose to index RPEs to the extent evidence suggests this is different from general consumer price inflation. This is to mitigate the impact of uncertainty at the level of input price inflation in RIIO-2.
- 7.14 In Appendix 1, we provide more detail on this issue and on a proposed specific uncertainty mechanism that seeks to manage the risks associated with forecasting RPEs.

<sup>40</sup> The indexation of RPEs does not apply to the ESO price control, given our proposals in that sector, including for a two-year price control duration and pass-through of ESO costs.

### Real price effects questions

**We welcome stakeholder views on our approach to real price effects in RIIO-2 that we describe in more detail in Appendix 1, including:**

- CSQ35. Do you have any views on our proposed factors to consider in deciding on appropriate input price indices? Do you have any evidence justifying the need for RPEs and any initial views on appropriate price indices?
- CSQ36. Do you agree with our initial views to retain notional cost structures in RIIO-2, where this is an option?
- CSQ37. Do you agree with our initial views to update allowances for RPEs annually and to include a forecast of RPEs in allowances? Do you have any other comments on the implementation of RPE indexation?

### Ongoing efficiency questions

**We welcome stakeholder views on our approach to ongoing efficiency in RIIO-2 that we describe in more detail in Appendix, including:**

- CSQ38. Do you agree with our proposal to use the EU KLEMS dataset to assess UK productivity trends? What other sources of evidence could we use?

## Managing the risk of asset stranding

### Introduction

7.15 The future needs of the energy system are to some extent always uncertain. The energy system transition, from changing behaviours to advancing technologies, generates uncertainty around the future demand for electricity and gas. This leads to potential stranding risk, whereby the demand for a network asset may fall away but remaining consumers would still need to pay for the original investment. Stranding risk can emerge for both existing and new investments.<sup>41</sup> This section sets out how we propose to protect consumers and investors against this risk.

### Existing investments

- 7.16 There are two regulatory tools we have considered for managing stranding risk of existing investments: varying financial depreciation schedules and an asset utilisation incentive.
- 7.17 Our policy for regulatory depreciation is to depreciate the RAV over the useful economic life of the network assets (taken as a whole). Currently, in RIIO-1, we are depreciating gas assets over 45 years, and electricity assets are generally transitioning from 20 years to 45 years over the course of the price control.<sup>42</sup> We are considering whether this remains appropriate, particularly for gas networks. Further details are presented in the Finance Annex, which invites stakeholders to provide views and evidence on this
- 7.18 Looking at the gas networks, we are aware that falling demand in recent years has meant that there is a significant amount of spare capacity on the transmission network. We are therefore proposing to require NGGT to review the current capability of the system and to ensure that its network expenditure is better

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<sup>41</sup> This section is not applicable to the ESO, who will have separate mechanisms to deal with uncertainty, such as the proposed shorter price control period.

<sup>42</sup> See the Finance Annex for further information on the RIIO-1 approach to regulatory depreciation.

aligned with future flows on the network and the needs of its users. We are also considering whether shorter asset lives and accelerated depreciation can help address the risk of asset stranding.

- 7.19 For the gas distribution network, the future is dependent on policy decisions to be taken in the 2020s regarding the future of heat. If the gas distribution network has a big role to play in low carbon heat (for example, through transporting hydrogen), then these assets could enjoy very long useful economic lives. However, if a decision is taken to decarbonise by electrifying heat, then gas may serve more as a transition fuel during the 2020s, and there may be a need to reassess the short and long-term investment required in gas distribution.
- 7.20 In terms of electricity transmission and distribution networks, our current assessment is that we expect the advent of electrified transport and/or heat could create additional demand for network capacity. Low demand scenarios are not impossible, but would require large proportions of energy users to generate their own power or to purchase locally off-grid. We currently assess this as a low probability scenario.

#### RIIO-2 Framework Decision

- 7.21 In our RIIO-2 Framework consultation, we raised the concept of an ongoing incentive to encourage the effective utilisation of assets. In our RIIO-2 Framework decision, we stated that this would be considered further at the sector-specific stage.

#### Our proposed approach for RIIO-2 – existing assets

- 7.22 We have assessed the case for an asset utilisation incentive and placing some risk on network companies to encourage them to size their existing capacity optimally. We do not believe this is merited for either the gas or electricity transmission sectors or in the gas distribution sector, for the reasons set out below. We will consider the possibility of such an incentive for electricity distribution as part of its sector-specific methodology consultation prior to RIIO-ED2.
- 7.23 The following reasons suggest that there is a high evidentiary hurdle to justify the introduction of such an incentive:
- The totex incentive mechanism already rewards companies for implementing more cost effective approaches to managing system requirements, including by better utilising existing assets.
  - It could pull in the opposite direction to other mechanisms, particularly those that protect asset health. An asset utilisation incentive of sufficient strength may undermine our efforts to ensure long-term asset health.
  - The only application of such an incentive was implemented in Sweden,<sup>43</sup> and feedback we have received suggests that networks report an inability to impact on the load factor metric.
  - The primary factors impacting utilisation may be outside a network's control. That is, network asset utilisation may improve for a number of reasons:

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<sup>43</sup> [https://www.ei.se/Documents/Publikationer/rapporter\\_och\\_pm/Rapporter%202016/Incentive\\_%20scheme\\_for\\_efficient\\_utilization.pdf](https://www.ei.se/Documents/Publikationer/rapporter_och_pm/Rapporter%202016/Incentive_%20scheme_for_efficient_utilization.pdf)

- (i) increased demand side responsiveness driven by changes in the wholesale market (for example, through half hourly settlement or the National Grid facilitated 'Power Responsive' project)
  - (ii) reforms to improve network charges (our review of network access and forward looking charges,<sup>44</sup> and the *Targeted Charging Review*<sup>45</sup>), and/or
  - (iii) changes in consumer behaviour in conjunction with technological improvement.<sup>46</sup>
- 7.24 An asset utilisation incentive might therefore either allocate risk inappropriately,<sup>47</sup> or reward networks for improvements for which they were not responsible. There are also significant issues with collecting and verifying the data required for such an incentive.
- 7.25 Across the price control, the greater use of competition, uncertainty mechanisms, consideration of non-traditional network solutions under totex, and enhanced engagement should also contribute to improving the utilisation of existing assets. Therefore, we are not proposing the introduction of such a mechanism at this time.

### Managing the risk of asset stranding questions

We welcome stakeholder views on our approach to asset stranding in RIIO-2, including:

CSQ39. Do you think there is a need for a utilisation incentive at the sectoral level? If so, how do you think the incentive would operate coherently with the proposed RIIO-2 price control framework for that sector?

### New investments

- 7.26 Decisions on large-scale investment ahead of need ('anticipatory investment') can have significant long-run economic costs and benefits. When future need is accurately forecast, anticipatory investment can generate large savings for network consumers. However, anticipatory investment for needs that do not arise can increase costs for consumers. These outcomes are illustrated in Figure 3.

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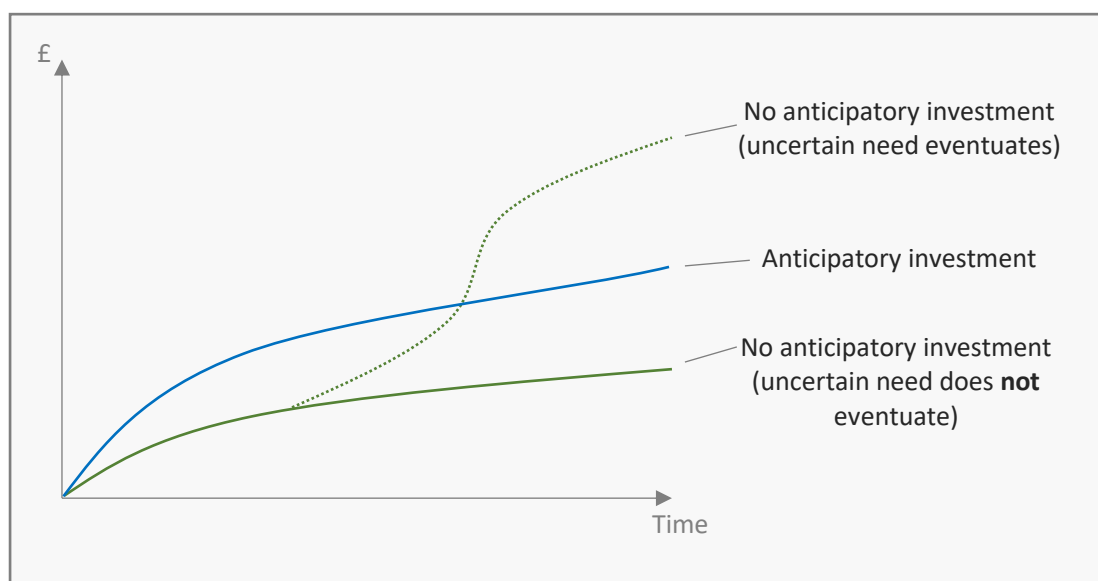
<sup>44</sup> <https://www.ofgem.gov.uk/electricity/transmission-networks/charging/reform-network-access-and-forward-looking-charges>

<sup>45</sup> <https://www.ofgem.gov.uk/electricity/transmission-networks/charging/targeted-charging-review-significant-code-review>

<sup>46</sup> See, for example, Hauke Engel, Russell Hensley, Stefan Knupfer, and Shivika Sahdev, 'The potential impact of electric vehicles on global energy systems' August 2018, available at: <http://www.mckinsey.com/industries/automotive-and-assembly/our-insights/the-potential-impact-of-electric-vehicles-on-global-energy-systems?cid=eml-web>

<sup>47</sup> Regulatory theory asserts that risks should be allocated to those best placed to manage them (although a more robust approach determines risk allocation as a function of both ability to manage, and preference for, risk): John Fallon, Michael S Blake and Daniel Kelley, 'Regulatory Objectives and Pricing Principles' *Network* 50 (March 2014).

**Figure 3: Anticipatory investment - illustrative cost pathways and decisions**



7.27 In some ways, nearly all network investment is undertaken ahead of need, and is therefore in this sense 'anticipatory'. However, there is a spectrum of anticipation, from highly certain need (e.g. demand currently emerging) to highly uncertain need (e.g. demand predicted to emerge in the long run).

#### RIIO-2 Framework Decision

7.28 In our RIIO-2 Framework Decision, we noted our intent to ensure that networks satisfied a higher evidentiary requirement before approving revenues for new infrastructure ('higher hurdles' test).

#### Our proposed approach for RIIO-2 – new assets (standard assets)

7.29 Our proposed approach is focussed principally on two areas:

- higher hurdles (enhanced CBA) for future investment in network capacity to mitigate stranding risks, particularly in the gas network; and
- a framework for assessing the costs and benefits of highly anticipatory investment, particularly in the electricity network.

7.30 For projects with more certain need, we propose to challenge the need for the investment and ask networks to meet a substantial amount of supporting analysis before approving funding. This will be the 'higher hurdles' test. We expect companies to satisfy us that they have properly explored alternatives to network investment, considered the option value of deferring investment, and – where appropriate – undertaken 'least worst regrets' assessment.

7.31 We would expect the network to evidence the benefit of an investment through a probabilistic cost benefit analysis (CBA) that explicitly considered different scenarios.

7.32 Similar to the probabilistic CBA mentioned above, networks should test a proposed investment against alternative options, a variety of demand forecast scenarios, potential market solutions, considerations of whether any 'whole system' solutions

are available, and an explicit consideration of the option value (technically, the 'quasi option value')<sup>48</sup> of deferring investment.

- 7.33 The 'quasi option value' can be calculated as the difference between the total benefits of the optimal set of decisions and the next best set of decisions, over time and uncertainty. Guidance on this option value from Ofgem can be found in our Strengthening Strategic and Sustainability Considerations in Ofgem Decision Making,<sup>49</sup> and Real Options and Investment Decision Making papers and annexes.<sup>50</sup>
- 7.34 These enhanced CBA processes, subject to consultation responses, will be developed through sector-specific working groups and consultation responses.

Our proposed approach for RIIO-2 – new investment (highly anticipatory investment)

- 7.35 Ofgem is the economic regulator of the gas and electricity sectors. It is our principle objective in carrying out our functions to protect the interests of existing and future consumers. Where potential investments by gas and electricity networks are justified on the basis of being in the interests of energy consumers it may be consistent with our principal objective and other statutory duties to support the delivery of these. However, there may be circumstances where expenditure is justified on the basis of policy objectives beyond our remit or whole economy implications.
- 7.36 To support networks in understanding how best to approach these types of investments, we propose to establish a new governance arrangement. We also propose measures to facilitate risk-sharing approaches.

*Proposed joint working group*

- 7.37 Prior to RIIO-1, the 'Electricity Networks Strategy Group' (ENSG) was established 'to identify, and co-ordinate work to help address key strategic issues that affect the electricity networks' and provide views on 'potential transmission network reinforcements to accommodate the new generation needed to meet the government's 2020 renewable energy [goals]'.<sup>51</sup> The ENSG was co-chaired by BEIS and Ofgem for electricity transmission related issues.
- 7.38 We believe there is a case for establishing a new governance arrangement, similar to the ENSG, to allow joint working between Ofgem, government and other relevant parties to consider the merits of proposals for highly anticipatory investment across all our sectors.
- 7.39 Any such new working group would likely be a combination of public sector entities, where specific representatives (including from networks) could be called upon to provide expert views.
- 7.40 This approach would allow the appropriate parties to input on projects of a highly anticipatory or uncertain nature. However, as an independent regulator, Ofgem would only approve a project after undertaking its own assessment.

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<sup>48</sup> See: Traeger, Christian P., 2014. "On option values in environmental and resource economics," *Resource and Energy Economics*, Elsevier, vol. 37(C), pages 242-252.

<sup>49</sup> <https://www.ofgem.gov.uk/publications-and-updates/discussion-paper-strengthening-strategic-and-sustainability-considerations-ofgem-decision-making>

<sup>50</sup> <https://www.ofgem.gov.uk/publications-and-updates/real-options-and-investment-decision-making>

<sup>51</sup> <https://www.gov.uk/government/groups/electricity-networks-strategy-group>

7.41 We expect that appropriate governance arrangements for this working group could be established prior to the commencement of RIIO-2. This could allow appropriate consideration of any highly anticipatory business cases proposed by the network companies as part of their Business Plan submissions next year.

*Proposals for facilitating risk-sharing approaches*

7.42 There may be some high-value investments that could deliver benefits for consumers, but are highly anticipatory. At this time, we have not identified specific examples of these types of projects and we are interested in the views of stakeholders on this matter.

7.43 If companies identify projects of this nature, then it may not be appropriate for consumers to be exposed to all of the risk. However, to enable the delivery of the potential benefits, there may be merit in enabling a degree of risk-sharing between investors and consumers, where investors take on some additional demand risk in exchange for a higher maximum return.

- This regime could have specified trigger points that are designed to determine whether the investment recommended by the network was likely to deliver a net benefit to network consumers. If so, the network might receive financial reward (potentially in the form of a higher return on equity for the investment associated with that project and which reflects the high value to consumers of appropriately investing in anticipation of need). If it is not likely to deliver benefits, the network's return for that project could be lower (potentially only receiving depreciation and a diminished return on equity for the investment).
- Importantly, any approach must be designed such that networks cannot simply pick investments that they would have undertaken as business as usual in order to receive inflated revenues. The policy would have to target those projects with genuine uncertainty such that participating networks face risks proportionate to any potential for additional return.

### **Managing the risk of asset stranding questions**

We welcome stakeholder views on our approach to asset stranding in RIIO-2, including:

- CSQ40. Do you have any views on our direction of travel with regard to anticipatory investment?
- CSQ41. What type of projects may be appropriate for a risk-sharing approach?
- CSQ42. How can we best facilitate risk-sharing approaches for high-value anticipatory investments?
- CSQ43. How can we guard against network companies proposing risk-sharing arrangements for project they may have undertaken as business as usual?



## 8. Driving innovation and efficiency through competition

### **In RIIO-2, we will use innovation and competition to drive efficiencies in network investment and operation.**

We expect to see more innovation carried out as business as usual and we will expect companies' Business Plans to describe how they will deploy innovations developed in previous price controls in their ongoing business. We propose to retain an innovation competition and this will be more focussed on strategic energy challenges. To support this, we propose to establish governance arrangements to identify these key challenges. We also propose measures to increase the involvement of third parties in innovation projects. We propose to remove the Innovation Roll-Out Mechanism, and we are seeking views on whether we should retain the Network Innovation Allowance.

We are considering the increased use of competition across sectors through both 'late' competition, for the delivery of a project, and 'early' competition, for creative ideas that solve network problems. We are also considering which party or parties may be best placed to design and run competitions. For other projects, we expect networks to be able to demonstrate how they will use competition to deliver benefits to consumers and reveal information on project costs.

**Consultation questions:** We seek views on all of the issues raised in this chapter. We ask specific questions on our proposals to make more innovation more effective and increase the use of competition to drive benefits for consumers. In your response, please provide evidence and alternative proposals, where relevant. A full list of questions is available at Appendix 6.

## Introduction

- 8.1 By finding new ways of operating and developing their networks, network companies can reduce costs to consumers. Companies are incentivised to reduce their costs and a certain level of innovation should take place as a matter of course. There may be some barriers to other types of innovation and ways to make innovation more effective. In this chapter, we describe our proposals for innovation in RIIO-2.
- 8.2 Greater competition in the price controls can also reduce costs for consumers. In this chapter, we describe our approach and direction of travel to using competition in RIIO-2 both in the delivery of projects, and for the initial identification of solutions to network issues.

## Innovation

### Introduction

- 8.3 The RIIO framework puts innovation at the heart of what network companies do, and rewards companies for reducing costs and improving service. This should drive companies to innovate and find more efficient ways of operating and developing their networks. The importance of innovation was also recognised by

the UK Government's recent consultation on encouraging innovation in regulated industries.<sup>52</sup>

- 8.4 Although price controls can incentivise innovation, they can also 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 cost of these activities does not deliver benefits within that period. The resetting of allowances in subsequent price controls can limit the payback period for successful innovation projects.
- 8.5 Despite this, network companies have to innovate to find new and better ways of delivering their essential services. Given the scale of the energy system transition (EST) challenges that network companies face and the uncertainty associated with these challenges, network companies cannot stand still and continue doing what they have always done. Innovation is important to ensure that network companies deliver a sustainable energy sector and long-term value for money.

#### Encouraging innovation through the RIIO Framework<sup>53</sup>

- 8.6 The RIIO-1 framework encouraged innovation in a number of ways. The totex approach equalises incentives between capital expenditure and operational expenditure, so companies are not unduly incentivised to build new assets, when non-build solutions are available. Additionally, the totex incentive mechanism encourages network company efficiency and innovation, by sharing any underspend between companies and consumers.

#### RIIO-1 innovation stimulus

- 8.7 In RIIO-1, we also had a specific innovation stimulus, to encourage a culture of innovation within the network companies, and support trials that may otherwise not take place within the price control framework. It consisted of:
- an annual Network Innovation Competition (NIC) for flagship innovation projects- a total of £720m is available over the course of RIIO-1
  - an up-front Network Innovation Allowance (NIA) awarded to each company for smaller innovation projects. This varied between 0.5-0.7% of each company's total allowed revenue – roughly equivalent to £500m over the course of RIIO-1
  - an Innovation Roll-out Mechanism (IRM) reopener, which gave network companies the opportunity to apply to us for funding to transition proven innovative technologies to business as usual (BAU), if they could demonstrate they were unable to roll out the project using their totex allowance.

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<sup>52</sup> The government's consultation seeks views on whether there is a case for giving regulators a statutory innovation objective to "fundamentally hard-wire pro-innovation thinking into their work and boost firms' abilities to innovate for the benefit of consumers." Encouraging innovation in regulated utilities, HM Treasury/BEIS, consultation published on 29 October 2018 and closing on 15 January 2019; <https://www.gov.uk/government/consultations/encouraging-innovation-in-regulated-utilities>

<sup>53</sup> This consultation is focused on promoting innovation using the RIIO framework. Note, however, that Ofgem's wider work supports innovation by promoting competition. While Ofgem also directly interacts with innovators via its Innovation Link service. For more information about the Innovation Link, see <https://www.ofgem.gov.uk/about-us/how-we-engage/innovation-link>

## Summary of RIIO-2 Framework decisions

- 8.8 In our RIIO-2 Framework decision, we decided to retain an innovation stimulus package, limited to projects that might not otherwise be delivered under the core RIIO-2 framework.
- 8.9 The decision was informed by our experience of innovation in the current and previous regulatory periods, and by two studies. Pöyry's evaluation of the Low Carbon Network Fund (LCNF) in 2016 estimated that the LCNF, costing around £300m in total, could deliver between £4.8-£8.1bn in financial benefits by 2030 if all solutions were rolled-out, as well as delivering £600m-£1.2bn in carbon reduction benefits.<sup>54</sup>
- 8.10 Additionally, CEPA's evaluation of RIIO-1 concluded that the type of innovation needed to meet the scale of challenges associated with the EST may not be delivered without additional funding on top of companies' allowed revenues.<sup>55</sup>
- 8.11 In the decision, we also indicated we would carry out further work on potential areas of reform: increased alignment of funding to support the system transition; greater coordination of public innovation funding; and enabling increased engagement from third parties.<sup>56</sup> Taken together, this approach reduces the risk of a fragmented approach, supporting a more strategic and coordinated approach to the transition of the power and heat sectors.

## Our proposed approach for RIIO-2

- 8.12 We are proposing a number of reforms to the existing RIIO innovation package to support these aims. These include:
- new measures that ensure network companies undertake more innovation as BAU
  - removing the IRM reopener
  - introducing a new innovation funding pot to replace the NIC and better focus on the big strategic innovation challenges within networks and system operation
  - increasing third party engagement, including legislative underpinning for direct access to Ofgem-administered funds, to support potentially new and transformative business models and solutions
- 8.13 The scope and range of potentially new and transformative business models, technologies, and innovative solutions continues to increase. Under RIIO-1, some progress has been made by network companies in adopting these to improve service levels and reduce costs. We want to grow this further, pushing existing arrangements as far as they can go and working with government to consider, where necessary, legislative underpinning for any changes. This will help ensure a level-playing field and ultimately deliver better value for consumers.

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<sup>54</sup> The LCNF was the precursor to the RIIO-1 NIC innovation stimulus. Prior to the RIIO framework, Ofgem introduced the Innovation Funding Incentive (IFI) in DPCR4 and the Low Carbon Networks Fund (LCNF) in DPCR5 to trial new technologies.

<sup>55</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/03/cepa\\_review\\_of\\_the\\_riio\\_framework\\_and\\_riio-1\\_performance.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/03/cepa_review_of_the_riio_framework_and_riio-1_performance.pdf)

<sup>56</sup> The rationale underpinning these areas of reform is set out in the RIIO-2 Framework consultation (see page 48); [https://www.ofgem.gov.uk/system/files/docs/2018/03/riio2\\_march\\_consultation\\_document\\_final\\_v1.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/03/riio2_march_consultation_document_final_v1.pdf)

Proposals to encourage more innovation as part of BAU using totex allowance

- 8.14 We believe that any additional dedicated innovation funding within the RIIO framework, delivered via an innovation stimulus, should be time-limited.<sup>57</sup> The stimulus should lead to a cultural shift in the companies so that more innovation takes place as part of their BAU activities.<sup>58</sup>
- 8.15 Network companies have conducted some innovation as part of BAU during the course of RIIO-1. However, this should be far more commonplace in RIIO-2 and should reflect the learning from innovation projects under RIIO-1 and LCNF.
- 8.16 We expect companies to fund lower-risk operational and maintenance innovation projects as BAU. 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.<sup>59</sup> Any allowed funding for BAU innovation which is not subsequently rolled out will be recovered as part of close-out for RIIO-2.
- 8.17 In their Business Plans, we expect companies to demonstrate how they will be applying innovation through their BAU activities, and what the consequential impact might be on their future expenditure requirements. We will also take into account the arrangements they will have in place to make the transition to BAU happen and the quality of their plans to involve third parties within their innovation programmes.<sup>60</sup>
- 8.18 Additionally, we propose that the Enhanced Engagement framework (network companies' Customer Engagement Groups / User Groups and the independent RIIO-2 Customer Challenge Group) should be used, where necessary, to challenge the level of ambition within companies' innovation strategies.<sup>61</sup>
- 8.19 Our assessment of their level of ambition will consider the views of these engagement groups, and this will be a factor in our application of any financial reward or penalty.

*Innovation Rollout Mechanism*

- 8.20 During RIIO-1, there are two application windows in each sector for companies to apply for funding. These have both closed for electricity transmission, gas transmission and gas distribution, but the second application window for electricity distribution is open in May 2019.
- 8.21 We have not seen compelling evidence that there is a need for the IRM in RIIO-2. The shorter five-year RIIO-2 price control period means there is less need for a dedicated funding mechanism to support roll-out as the shorter Business Planning period reduces the need for a re-opener during the price control. Additionally, there have only been two successful applications for funding to date.<sup>62</sup> We

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<sup>57</sup> This was our stated intention at the start of RIIO-1. For example, see A new way to regulate energy networks – final decision, Ofgem, October 2010;

<https://www.ofgem.gov.uk/ofgem-publications/51870/decision-docpdf>

<sup>58</sup> The LCNF was the precursor to the RIIO-1 NIC innovation stimulus. Prior to the RIIO framework, Ofgem introduced the Innovation Funding Incentive (IFI) in DPCR4 and the Low Carbon Networks Fund (LCNF) in DPCR5 to trial new technologies.

<sup>59</sup> See Chapter 9 for more details on the totex allowance and totex incentive mechanism

<sup>60</sup> See Chapter 9 for more details on the Business Plan incentive

<sup>61</sup> See Chapter 3 for more detail on the role of Customer Engagement Groups, User Groups and the Customer Challenge Group

<sup>62</sup> SPEN awarded £8.01 to deploy integrated network constraint management in 2017. And SPT awarded £24.28m to deploy a new type of conductor on parts of network to increase capacity in 2015.

rejected other bids because they were not distinctive from ordinary business arrangements and did not support the roll-out of proven innovations as defined in the IRM licence condition.<sup>63</sup>

8.22 Additionally, network companies will continue to benefit through the totex incentive mechanism from the roll-out of proven innovations, by retaining a share of any efficiency savings that result. Their baseline revenues should therefore be sufficient to fund the roll-out of these type of projects.

8.23 Therefore, we propose to remove the IRM for RIIO-2.

### **Innovation questions**

We welcome stakeholder views on our approach to innovation in RIIO-2, including:

CSQ44. Do you agree with our proposals to encourage more innovation as BAU?

CSQ45. Do you agree with our proposals to remove the IRM for RIIO-2?

### Proposals to introduce a new funding pot to focus on strategic challenges, in place of the Network Innovation Competition

8.24 We propose to introduce a new network innovation funding pot that will have a sharper focus on strategic challenges. This will be in place of the NIC and will focus on defined strategic network-related EST challenges.<sup>64</sup> We want to increase coordination between network innovation projects and wider publicly funded energy innovation projects. By consulting with stakeholders when setting EST-related challenges for the future projects, we aim to enable increased third party involvement.

#### *Scope of projects*

8.25 We propose that the new funding pot should finance strategic transformational EST projects that align to defined challenges. These projects will have to demonstrate that they would not otherwise be funded as BAU.<sup>65</sup>

8.26 We believe that this may require us to establish a new governance arrangement to define the relevant system transition innovation challenges. To define such challenges, we would seek to consult with external stakeholders, including in particular BEIS, UK Research and Innovation (UKRI),<sup>66</sup> network companies and third party innovators. The governance would support the definition the EST-related challenges, the criteria that would underpin the challenges and the funding that should be made available. This would protect Ofgem's independence and support a more holistic approach to innovation, helping maximise the potential benefits for consumers.

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<sup>63</sup> For more information about rejected applications, see the 2017 decision on the electricity distribution roll-out mechanism; <https://www.ofgem.gov.uk/publications-and-updates/decision-2017-electricity-distribution-innovation-roll-out-mechanism>

<sup>64</sup> Although the RIIO-1 NIC has supported 36 flagship projects up to the end of 2018,<sup>64</sup> the theme of each project is currently chosen by network companies who submit bids for funding via an open competition

<sup>65</sup> These projects would not be otherwise financed because, for example, the benefits from such projects are likely to accrue more widely than an individual network company and/or the payback period from an individual project is likely to be much longer than an individual price control period; the innovation itself will be risky; and the collaboration required between network companies across different sectors for such projects may be difficult within the wider price control framework.

<sup>66</sup> UKRI was established in April 2018 after a merger between the seven Research Councils, Innovate UK and Research England.

- 8.27 This could enable us to identify a discrete number of challenges where innovation is required to solve technological or commercial problems. We believe this should potentially involve early-stage research and development, and/or later-stage demonstration and deployment trials. This could, for example, include funding for innovation projects that may deliver benefits for network users while supporting wider programmes regarding the future of heat, waste or transport.
- 8.28 This process for determining the innovation challenges would be repeated during RIIO-2. Depending on the frequency of the competitions, this could potentially be done ahead of each innovation competition. This would ensure there is flexibility to redefine the challenges if the strategic priorities change or new challenges emerge. We also propose to consider whether it is desirable to use other governance groups considering energy network innovation or the wider EST<sup>67</sup> as part of this consultation process.
- 8.29 We propose that successful bids for innovation funding would have to demonstrate collaboration between network companies, and how each company has engaged with third parties.

#### *Level of funding*

- 8.30 As there is uncertainty over the type of EST-related challenges that will emerge and the type of innovation required to meet those challenges, we believe it is appropriate to retain flexibility over the level of funding made available for RIIO-2 innovation. Accordingly, as part of the governance process determining the innovation challenges, we propose to retain the ability to flex funds up or down depending on the type or scale of the EST-related challenges that we identify.
- 8.31 We currently consider that, if we identify challenges involving later-stage demonstration and deployment projects, we should seek to fund projects of similar size to the projects funded by the RIIO-1 NIC (generally between £3m-£15m). If we identify early-stage research and development challenges, we imagine funded projects would be of lower value (<£3m).
- 8.32 At this time, we do not propose to indicate the maximum level of funding that will be available, the frequency of competitions or the level of contribution we will expect companies to make to any proposed innovation project. These issues are dependent on the composition of the overall RIIO-2 package (in particular, whether or not we decide to retain the NIA for RIIO-2). We will further consider these issues and consult on them after we have decided the composition of the overall RIIO-2 package.

#### *Raising innovation funds*

- 8.33 We propose that the funds used for this new innovation funding pot will be raised from use of system charges, as they currently are for the RIIO-1 NIC. These charges are recouped from all network consumers and the money raised will be transferred between licensees.
- 8.34 RIIO-1 gas NIC funds are currently raised from transmission customers. We propose to adopt the same cost recovery mechanism for the new gas innovation funding pot.
- 8.35 RIIO-1 electricity NIC funds are currently recovered via Transmission Network Use of System (TNUoS) Charges. However, at the start of the RIIO-2 price control, the

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<sup>67</sup> For example, this may include consultation with existing groups such as the Energy Innovation Board or smart systems and flexibility groups considering the EST.

ESO will have a separate price control. We are proposing that the ESO will be eligible to independently compete for innovation funds, alongside other network companies. However, ESO funds are recovered from Balancing Services Use of System (BSUoS) Charges and many of the benefits of their projects relate to balancing and settlement. We will therefore further consider whether RIIO-2 electricity innovation funds need to be raised via (BSUoS) Charges and consult on this after we have decided the composition of the overall RIIO-2 package.

### **Innovation questions**

We welcome stakeholder views on our approach to innovation in RIIO-2, including:

- CSQ46. Do you agree with our proposals to introduce a new network innovation funding pot, in place of the Network Innovation Competition, that will have a sharper focus on strategic energy system transition challenges?
- CSQ47. Do you have any views on our proposals for raising innovation funds?

### Consulting on the need to retain the Network Innovation Allowance

- 8.36 We are uncertain whether there is a continued requirement for an annual innovation allowance in RIIO-2.
- 8.37 The NIA has funded several hundred smaller-scale projects during RIIO-1, including many early-stage projects that are not ready for large-scale deployment trials. Bodies such as the Energy Innovation Centre<sup>68</sup> also suggest that it has been primarily the NIA, rather than the NIC, that has enabled third parties to get involved in network innovation.
- 8.38 However, we believe that some NIA projects funded in RIIO-1, particularly operational and maintenance projects, could have been funded through companies' totex allowance as they had the potential to deliver efficiency savings for network companies. We have set out proposals to strengthen the incentives for companies to fund such projects as BAU above.
- 8.39 We are also concerned that NIA projects may not always build upon the lessons from past projects. In 2017, we imposed licence requirements on network companies to publish jointly gas and electricity innovation strategies.<sup>69</sup> This is in order to provide a clear overview of why companies are undertaking innovation projects and to enable interested parties to understand how the projects relate to one another. We remain concerned that companies are potentially duplicating projects conducted by other network operators without building upon past projects or progressing to roll out learnings as BAU.<sup>70</sup>
- 8.40 We have also found it difficult to track the benefits that such projects are delivering. This is partly due to the number of smaller-scale projects that have been funded during the course of RIIO-1. This makes it challenging to evaluate whether past innovation projects have been successful at delivering expected

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<sup>68</sup> The Energy Innovation Centre is a not-for-profit organisation that brokers relationships between network companies and SMEs to enable increased third party involvement in network innovation.

<sup>69</sup> As detailed in the Network Innovation Review: our policy decision, 31 March 2017; <https://www.ofgem.gov.uk/publications-and-updates/network-innovation-review-our-policy-decision>

<sup>70</sup> The concern that companies are not building upon the lessons from projects conducted by other network operators was also raised in reviews of the LCNF. For example, see "Innovation in regulated electricity distribution networks: a review of the effectiveness of Great Britain's LCNF", D. Frame et al, Energy Policy 118 (2018) 121-132

results, or delivered outcomes that would not have been achieved without additional innovation stimulus funding. We appreciate that this is an inevitable difficulty with innovation funding as benefits often accrue after an individual project is completed and/or to those other than the network company. However, this is an evidence gap we need to address in order to make a decision about whether or not to retain NIA.

8.41 In addition to these concerns, we currently believe that, if we were to retain the NIA for RIIO-2, we should look to reform it in order to align with the reform areas we outlined in the Framework Decision. In other words, we would seek to reform any RIIO-2 NIA to focus funding on projects which support EST, align projects more with wider public innovation funding, and enable increased engagement from third parties. For example, we believe a reformed NIA could:

- increasingly focus on EST-related projects by setting a lower compulsory contribution for EST projects, compared to operational and maintenance projects
- potentially enable increased support for network-related innovation projects which seek to address consumer vulnerability
- be strengthened to further enable third party involvement.

8.42 We are therefore consulting on the case for the retention of the NIA.

CSQ48. Do you think there is a continued need for the NIA within RIIO-2? In consultation responses, we would welcome information about what projects NIA may be used to fund, why these could not be funded through totex allowances and what the benefits of these projects would be.

CSQ49. If we were to retain the NIA, what measures could be introduced to better track the benefits delivered?

#### Increasing third party involvement

8.43 Several of our proposals seek to increase third party involvement in network innovation. In particular, we are proposing that:

- network companies will be incentivised by the Business Plan incentive to set out in their Business Plans how they will engage with third parties in identifying and delivering innovation. We will consider the level of ambition they show in this regard, along with any stakeholder feedback we receive, in our assessment of these plans and the allocation of any associated penalty or reward
- third parties will have the opportunity to influence the themes of the EST-related challenges that underpin the future network innovation funding via the governance and consultation process that will feed into the definition of these challenges
- we will set a strong expectation that third party involvement in projects will be required in order to receive funding from the new innovation funding pot for strategic network innovation challenges
- if we retain the NIA, we would look to use this to further strengthen requirements imposed on network companies to consider third party innovation proposals. For example, we may potentially consider, where



feasible, requirements for companies to put in place arrangements so that third parties have the opportunity to bid for projects.

- 8.44 We believe that these reforms should increase third party involvement in network-led innovation. However, third parties' involvement in network innovation projects will still be dependent on partnership with network companies, as we cannot presently award network innovation funding directly to a third party. Although network companies are increasingly engaging with third parties and involving them in network innovation, and bodies such as the Energy Innovation Centre are helping to connect network companies with SMEs, we believe network companies are still 'gatekeepers'.
- 8.45 As explained above in our proposal to fund strategic network innovation challenges, we are retaining flexibility to potentially include early-stage research and development within the defined challenges. This could be particularly valuable if we can directly fund early-stage innovation by third parties.
- 8.46 We therefore intend to consider the changes, including legislative change, that could be required to enable direct third party access to Ofgem administered network innovation funds, if we have evidence that third party access will deliver benefits to consumers. This will require evidence that third party access will deliver benefits to consumers.

#### Wider requirements imposed on network companies to publish innovation strategies

- 8.47 There are currently licence requirements imposed on network companies to work together to publish collective gas and electricity innovation strategies. This seeks to provide strategic direction to network-led innovation, a clear overview of why companies are undertaking innovation projects and enable interested parties to understand how the projects relate to one another. We believe these innovation strategies are useful and we have welcomed the publication of the first gas and electricity innovation strategies this year.<sup>71</sup>
- 8.48 However, the purpose and utility of these innovation strategies may depend on the composition of the RIIO-2 innovation stimulus and, in particular, the retention of the NIA. Accordingly, we will further consider and consult on these requirements after we have decided on the overall composition of the innovation stimulus. If we retain the requirement to publish gas and electricity innovation strategies, we may consider strengthening this requirement to ensure that gas and electricity network operators work across sectors to identify projects that deliver whole system benefits.

#### Sector specific application

- 8.49 Our intention is that the framework for RIIO-2 innovation stimulus should be consistent for gas transmission, gas distribution and electricity transmission companies.
- 8.50 The RIIO-1 electricity distribution price control ends on 31 March 2023, two years after the start of RIIO-2 for gas transmission, gas distribution and electricity transmission network companies. Electricity distribution companies will continue to

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<sup>71</sup> Gas Network Innovation Strategy, ENA, March 2018; <http://www.energynetworks.org/gas/futures/gas-network-innovation-strategy.html>  
Electricity Network Innovation Strategy, ENA, March 2018; <http://www.energynetworks.org/electricity/futures/network-innovation/electricity-networks-innovation-strategy.html>

use the RIIO-1 NIC and NIA until the 31 March 2023. The RIIO-1 electricity NIC will only be open to electricity distribution companies after 2021 and, as we have previously set out, the level of available electricity NIC funding will be £40m between 2021 and 2023.<sup>72</sup>

- 8.51 However, we appreciate that there could be benefits if electricity distribution companies continue to collaborate in innovation projects with other network companies between 2021 and 2023. Although DNO-led projects will continue to be funded via the RIIO-1 NIC and NIA until 2023, we believe that DNOs should, where appropriate, continue to participate as project partners and/or consider the lessons learned of RIIO-2 innovation projects led by other network companies, if the projects deliver benefits to their network consumers.
- 8.52 The Electricity System Operator (ESO) is a different type of organisation to other network companies. It is asset-light, has a smaller cost base and many of the benefits of its innovation projects are realised through wider network balancing and settlement charges. Within the ESO consultation document, published alongside this document, we are proposing that the ESO will also be able to independently compete for innovation funds. However, the ESO consultation document considers some additional issues, such as recovering innovation funds from BSUoS, that we plan to consider in more detail as part of the development of the ESO price control.

CSQ50. Do you agree with our proposals for electricity distribution companies prior to the commencement of RIIO-ED2?

#### Next steps for developing the RIIO-2 innovation stimulus

- 8.53 We plan to make the decision on the overall structure of the RIIO-2 innovation stimulus in May 2019, alongside the wider RIIO-2 Sector Specific Methodology Decision. This will include the decision on whether the RIIO-2 innovation stimulus will comprise of a new funding pot, in place of the NIC, to fund strategic EST-related network innovation challenges; whether we will continue with the NIA; and whether we will remove the IRM.
- 8.54 Over the course of 2019, we will start to develop the operation and governance of the future innovation stimulus package. We plan to convene an Innovation Working Group to feed into our development of these detailed arrangements. We will also work with other public sector bodies, including BEIS and UKRI, and other stakeholders when developing governance to ensure there is increased coordination between network innovation and other publicly funded energy innovation.
- 8.55 We then anticipate publishing a consultation in mid-2019. This will include proposals on the level of funding available, the operation and governance of the innovation stimulus package, and the role of wider requirements to publish joint innovation strategies.

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<sup>72</sup> We previously decided that £40m will be available for NIC under the electricity distribution price control until 2023; see page 26 of the Network Innovation Review decision, March 2017, [https://www.ofgem.gov.uk/system/files/docs/2017/03/the\\_network\\_innovation\\_review\\_our\\_policy\\_decision.pdf](https://www.ofgem.gov.uk/system/files/docs/2017/03/the_network_innovation_review_our_policy_decision.pdf)

### *Evaluating the innovation stimulus and monitoring its benefits*

- 8.56 It is still our intention that dedicated innovation funding within the RIIO framework, delivered via an innovation stimulus on top of companies allowed revenue, is time-limited.<sup>73</sup> We believe an innovation stimulus is necessary until such time as other incentives under RIIO and network companies' cultures are found to be stimulating sufficient innovation.
- 8.57 We will seek to monitor the benefits of the innovation stimulus. We will work to develop a framework to monitor innovation conducted by network companies, evaluating benefits from the stimulus, ensuring proven innovation is rolled out into BAU and interrogating companies where it is not. We also propose to evaluate the RIIO-1 innovation stimulus at the end of the RIIO-1 period and use the findings of this to consider the level of innovation funding available and the governance underpinning the RIIO-2 stimulus.
- 8.58 If we find that the innovation stimulus is not proving to be effective or is not necessary, we will consider potential changes. This could include its removal or changes to the funding available or governance underpinning the operation of the RIIO-2 innovation stimulus.

## **Competition**

### **Introduction**

- 8.59 We want to use competition to drive cost efficiencies where it is possible and likely to deliver a net benefit to consumers.

### **Summary of RIIO-2 Framework decisions**

- 8.60 In our RIIO-2 Framework decision, we expressed our intention to extend the role of competition where it is appropriate and provides better value for consumers. This included using the criteria for competition applied in onshore Electricity Transmission to identify projects suitable for competition in other sectors.
- 8.61 We stated that we would carry out further work on how we might identify projects and apply competition within a given sector, in addition to developing the range of models for late and early stage competition. In particular, we noted that there could be major benefits from developing earlier forms of competition, especially in how these might unlock optimised whole system outcomes.
- 8.62 We stated that we expect the new, separable and high-value criteria we have developed for identifying projects for competition in Electricity Transmission are likely to be applicable across the sectors. This is because we expect there to be a net-positive case for opening up competition for projects that meet these criteria in other network sectors. We noted that we would continue to keep the criteria under review.

### **Summary of our proposed approach to competition in RIIO-2**

- 8.63 Under RIIO-2, we intend to utilise competition to reduce the cost of meeting system needs and reveal information on costs. We are also exploring how competition can provide an opportunity for providers of flexibility solutions to demonstrate their value against more traditional network solutions.

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<sup>73</sup> This was our stated intention at the start of RIIO-1. For example, see A new way to regulate energy networks – final decision, Ofgem, October 2010; <https://www.ofgem.gov.uk/ofgem-publications/51870/decision-docpdf>

8.64 We consider that any potential approach to competition in RIIO-2 should include amongst other things a consideration of both when the competition is run; and who runs the competition. Examples of the different types of competition that could apply, are illustrated in Figure 4 below.<sup>74</sup>

**Figure 4: RIIO-2 examples of types of competition**

		When the competition is run	
		Early	Late
Who runs the competition	Ofgem or System Operator or Third Party	System-wide competition for reinforcement deferral or replacement run by ESO  Flexibility markets operated by a DSO	CATO
	Network licensee	Flexibility market operated by a DNO  Network-led competition to meet new system need (eg Shetland Energy Solution)	SPV

8.65 Where competitions are run by private monopolies, we also must consider how these are regulated and incentivised to run efficient competitive processes. The options can range from transaction-based incentives (such as a simple ‘tenderer’s fee’ paid per competitive transaction) to more outcome-based incentives (such as a share of totex savings or avoided reinforcement costs).

8.66 In the rest of this chapter, we develop the criteria we could apply to determine when early or late competitions should be considered; who should run them; and how they should be incentivised.

8.67 While the proposals we are developing in this document may, in the first instance, find potential application in the transmission and gas distribution sectors, they also incorporate our early thinking on potential applications to electricity distribution. We will consult on arrangements for RIIO-ED2 within the sector specific methodology consultation in 2020.

### Competition questions

We welcome stakeholder views on our proposed approach to competition in RIIO-2, including:

- CSQ51. Have we set out an appropriate set of models for both late and early competition to explore further?

### When the competition is run

8.68 Network competitions can be run at different stages of a typical project development cycle. For example, a competition could be used to facilitate system

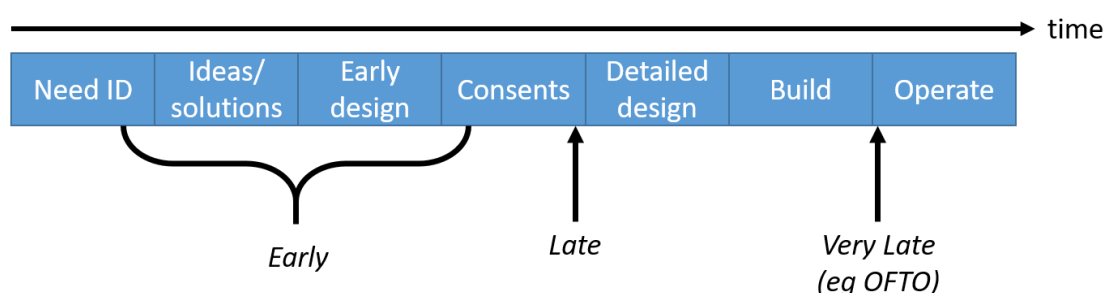
<sup>74</sup> Ofgem has been developing the following models to introduce the benefits of competition in the context of electricity transmission in RIIO-1: the Competitively Appointed Transmission Operator (CATO) model, the Special Purpose Vehicle (SPV) model and the Competition Proxy Model (CPM).

planning, ie run prior to the project design process to reveal the best idea to meet a system need (early competition). Alternatively, once an idea for meeting a system need is specified and sufficiently developed (eg secured planning consent), there can be competition for the delivery of that project (late competition).

- 8.69 The models we have designed to date in onshore electricity transmission (CATO, SPV, and CPM) have been focused on late competition. We applied an earlier form of competition intended to determine a potential future energy solution for Shetland.<sup>75</sup>
- 8.70 Figure 5 presents the development process of typical projects, from identification of the need to the eventual operation of the asset. Where we discuss early competition below, we have focused on competitions that include tenders for initial ideas, without a reference design, and would therefore be characterised as 'very early' competition.
- 8.71 We provide supplementary information on both early and late competition models in Appendix 2.

**Figure 5: Typical project process**

**Typical project process**



**Proposed criteria for whether and at what point the competition is run**

Early Competition

- 8.72 We consider that early competitions could produce benefits for consumers by revealing new or innovative ways of solving network problems (such as grid constraints) and avoiding expensive reinforcement costs (for instance, by using flexibility providers). Even where traditional 'build' solutions are the only realistic solution, early competitions can play a major role in revealing the best ways of designing, constructing, financing, operating or maintaining network assets.

**The following are some examples of early competition being applied in the energy sector:**

PJM used a very early, two stage model on the Artificial Island project (where the different solutions were assessed on different criteria at two bidding rounds).

The New York ISO used a very early, one stage model on the Western New York Public Policy Transmission Need.

The Alberta Electric System Operator used an early, one stage model on the Fort McMurray West Transmission Line where bidders were asked to innovate against a

<sup>75</sup> <https://www.ofgem.gov.uk/publications-and-updates/decision-shetland-new-energy-solution>

reference design solution. The proposer of the selected solution also gained the right to build, finance, own, operate and maintain the asset(s).

The Midcontinent ISO used a similar model as the Alberta Electricity System Operator on the Hartburg-Sabine Junction 500 kV Competitive Transmission Project.

- 8.73 Accordingly, we think a primary criterion for determining whether early competition models are appropriate is **contestability** of solutions (ie whether or not there are different potential solutions to a network problem). The classic example is network reinforcement. Increasingly, there are non-traditional flexibility alternatives that may be able to defer or replace network reinforcement.
- 8.74 We also think other relevant criteria could include **time-criticality** (running competitions takes time which must be factored in); **value** (running competitions involves some transaction costs, so benefits should outweigh these); and **certainty of system need** (running competitions too early may mean system requirements change by the time a solution is found).
- 8.75 We have set out a more detailed assessment of criteria for early competition in Appendix 2, along with proposals for different ways of running early competitions.

#### Late Competition

- 8.76 In contrast to early competition models (on which we have done comparatively less work to date), the criteria for late competition models are fairly well developed.
- 8.77 The criteria we currently apply in ET to identify projects suitable for late competition models are 'new', 'separable' and 'high-value'. The existing definitions of the criteria (developed in the context of ET) are available in Appendix 2.
- 8.78 In Appendix 2, we have also provided our initial analysis of the appropriateness of applying our existing approach to the competition criteria and to defining and scoping projects to the three other non-ET sectors (GD, GT, ED). In summary, we consider that there could be comparable levels of benefits produced by late competition for new, separable and high value projects in those sectors, and we seek stakeholders' views on this.
- 8.79 We therefore propose that the '**new**', '**separable**' and '**high value**' criteria as set out in Appendix 2 are used to determine suitable projects for late competition models across all four network sectors.
- 8.80 It is preferable to identify what type of expenditure competition will be applied to and when competition will be applied at the Business Plan stage in each sector. We propose that allowances for expenditure that may be subject to competition are not locked into the baseline in our final determinations, other than for native competition through the totex incentive mechanism. We propose that instead these would be set during the control based on costs revealed by competition, where appropriate.

#### **Early and late competition models questions**

We welcome stakeholder views on the supplementary information we have provided in Appendix 2 on early and late competition models and on the Draft Impact Assessment on late competition<sup>76</sup> that we have published alongside this consultation, including:

- CSQ52. Do you agree with the proposed criteria we have set out for assessing the suitability of late competition models? Would you suggest any other criteria, and if so, why?
- CSQ53. Do you have any views on the costs and benefits we have used for our draft impact assessment on late competition?
- CSQ54. Are there any considerations for a specific sector we should include in our IA?
- CSQ55. What are your views on the potential issues we have raised in relation to early competition? How would you propose mitigating any issues and why? Are there additional issues you would raise?
- CSQ56. Are there other potential drawbacks of early competition?
- CSQ57. Do you consider that there are any existing examples of early competition (including international examples or examples from other sectors) which demonstrate models of early competition that could generate consumer benefit in the GB context?
- CSQ58. What are your views on the advantages and disadvantages of the high-level approaches to early competition outlined? How would you recommend mitigating any disadvantages?
- CSQ59. Do you have any views on the potential criteria for identifying projects for early competition discussed above? Would you suggest any other criteria, and if so, why?

## Who runs the competition

### Criteria for who runs the competition

- 8.81 The competition needs to be fair and transparent and the bidding market needs to have confidence that this is the case for the competition to be effective.
- 8.82 We are therefore seeking views on the roles and responsibilities associated with competitions and on the institution(s) that may be best placed to discharge them. In summary, our initial thinking is that these could include:
- *Defining the system need* – the starting point for any form of competition is to define the system need (e.g. a network constraint that needs to be resolved).
  - *Conducting options appraisal* – the next step is to carry out an appraisal of different options that could meet the need, and assess what form of competition (if any) might be appropriate based on criteria discussed in Appendix 2.
  - *Tender design* – If a form of competition is appropriate, then an appropriate tender or competition process must be designed, including the requirements for participation imposed on bidders, the criteria for the evaluation of bids and

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<sup>76</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/12/competition\\_draft\\_ia\\_dec\\_2018.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/12/competition_draft_ia_dec_2018.pdf)

the tender award. These need to be defined upfront, be transparent and communicated clearly to potential bidders.

- *Running tenders and evaluating bids* – this includes receiving the submitted proposals, assessing them, shortlisting bidders and determining a successful bidder or bidders following due process based upon the tender criteria.
- *Preparatory work* – in some cases, preparatory work (such as obtaining consents and planning permissions) may also be required prior to or during the tender process.

8.83 We are aware that there may be requirements under the procurement legal framework that apply to public bodies procuring public contracts or certain entities where procuring particular works or services. Where such procurement rules apply, we expect, as a minimum, that the relevant contracting entity will comply with the legal requirements relevant to it and we will consider how that interacts with any policy in respect of the competitive models.

8.84 Keeping the above roles and responsibilities in mind, we consider criteria that could apply to determining who is best placed to run competitions include:

- *Bias/Conflicts of interest* – The institution undertaking many of these functions needs to be sufficiently independent of potential bidders such that it can perform these functions free from bias or a perception of bias or conflict of interest. This may be more relevant to the tasks directly associated with the design and running of the competition.
- *Economies of scale and scope* – One of the primary costs of competition is the cost of running the tenders. The centralisation of competition functions could, therefore, bring with it economies of scale and centralisation of expertise and culture.<sup>77</sup> Where this centralisation is broadest, being both within and across the sectors, the cost efficiency would be expected to be maximised.
- *Technical proficiency* – The energy sector is becoming increasingly complex. A competition-running institution will need to have strong technical knowledge. It will need to consider and measure impacts across the whole system and will need to have a sufficient depth of experience (although we note that an institution running a competition could potentially bring in external expertise – e.g. through consultancy – where efficient, to advise in areas where it did not have the necessary expertise and/or resourcing).

8.85 There appear to be three existing institutions that could undertake some or all of these tasks:

- *Ofgem* – as regulator, Ofgem is independent from potential tenderers (networks and third parties). Ofgem already runs tenders to appoint and licence Offshore Transmission Owners (OFTOs).
- *ESO*<sup>78</sup> – There is no fully independent system operator in either the gas or electricity sectors. However, in ET the system operation functions will be legally separated from NGET by 1 April 2019. Consideration will need to be given to the arrangements for the ESO post-separation and whether these address the

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<sup>77</sup> One option being separately developed for the SPV model involves the networks running the tenders themselves. Where this model is used, using the ESO as a centralised competition facilitator may not reflect a cost saving.

<sup>78</sup> The possible facilitation of competition by the ESO in either the gas or electricity sector can take various forms and some forms are likely to need amendments to primary legislation for effect to be given to them.



potential for bias (and perceived bias). The ESO runs the Network Options Assessment (NOA) process and would have strong technical expertise required to consider different options for addressing electricity system needs.

- *Network companies in their own areas* – the incumbent network licensees have a substantial amount of information on and understanding of the existing assets in their own areas. In many cases, network companies already run competitive processes to deliver projects. We refer to such competitions as *native competition*, because they are ‘home-grown’ within a regulated monopoly as a rational response to the totex incentive. A good example of native competitions are the flexibility contracts tendered by DNOs such as WPD and UKPN, which seek to use flexibility services to defer reinforcement expenditure. However, network companies may face perceptions of bias or conflicts of interest, if they are seen to favour network solutions over non-network ones.

CSQ60. Do you agree with the criteria we have set out for assessing who should run competitions? Based on these criteria, which institution do you consider is best placed to run early and late competitions?

### **How should competition be incentivised?**

- 8.86 The status quo model for competition is native competition, incentivised by the totex incentive. Here, the regulator sets a cost allowance to meet an identified system need (e.g. a network constraint). A network operator then faces incentives to minimise the costs associated with meeting that system need, including using competitive processes and procurement where appropriate to find the most efficient solution. Any savings are shared with the consumer under the totex incentive mechanism.
- 8.87 As solutions to network problems become more and more contestable, it may be more appropriate to set allowances based on costs revealed through competition, with a margin or fee for the competition-running entity. This margin or fee could be transaction-based (e.g. per successful tender) or outcome-based (e.g. based on avoided or deferred reinforcement costs).
- 8.88 This may particularly be the case where the totex-based approach may lead to inefficient overpayment by consumers. For instance, if totex within a price control includes allowances for reinforcement expenditure that are simply deferred to the next price control period by a DNO using markets for flexibility, it is not obvious that companies should keep a significant proportion of the ‘saving’ in the control period as profit. In such cases, costs have been shifted to a future period, but not avoided. The reward for the use of flexibility to defer network spend should be based on the time and option value of deferral. Likewise, it may be more appropriate to reward the use of flexibility to replace or avoid network spend using some measure of avoided cost. In other words, the reward or incentive may depend partly on the *type* of solution procured through competition.
- 8.89 In the status quo, we propose that the native competition that licensees undertake should be in line with principles of best practice. Our initial thinking is that these could include:
- Utilisation of competitive processes for all procurements and projects, except where the potential benefits of doing so are outweighed by the costs.

- The competitive process must be robust, transparent and provide equal treatment of potential bidders and protect information appropriately.
- The complexity of the competitive process used should be proportionate to the value and time-sensitivity of the project or system need in question.
- Any information must be provided equally to all parties, and any conflicts of interest have to be appropriately managed.
- Licensees should be agnostic to technology and bidder type.
- Competitions should be structured to generate outcomes in the interests of current and future consumers.

8.90 We outline two possible approaches for RIIO-2 intended to strengthen the use of competition under the price control. The first would require networks to establish competition processes through their Business Plans, and the second is to use competitive processes for the purposes of price discovery. These two approaches are not mutually exclusive.

#### Potential approaches to enhancing native competition

##### *Business Plan process*

8.91 Under this approach, network companies would be required to reveal and evidence how they intend to use competitive processes and pressures to improve outcomes for their consumers. In their Business Plans, network licensees should outline their competition procedures. The type of information we might expect to receive could include:

- clear governance processes for the competitions (such as annual public reporting of their performance against their proposed procedures).
- the type of metrics and tangible audit methods by which Ofgem and stakeholders can assess their performance throughout the price control.

8.92 We would consider the quality and ambition of each network licensee's proposals on competition in our assessment of Business Plans for the purposes of our proposed Business Plan Incentive (see Chapter 9).

##### *Competition as price finder*

8.93 We are considering developing a process for projects or items of expenditure where we are not confident the costs can be accurately estimated at the time of setting the price control. The process would require networks to use competition to reveal the market price for such projects.

8.94 Our early thinking is that this process could include the following basic elements. First, once a system need/project had been identified, Ofgem – with input from the network licensee – would determine an allowable cost of a traditional network solution (providing a 'cost reference benchmark'), using the best techniques and data available. Second, the network licensee would be required to run a competition to find a solution to satisfy the system need/complete the project.

8.95 Where the competition winner's solution was a more cost-efficient method of delivering the project or meeting the system need than the cost reference model, the cost of the competition winner's proposed solution would be added to the network licensee's totex. In addition, the licensee would receive a tenderer's award, thus providing an incentive for licensees to run good competitions.

- 8.96 This could complement our proposed approach to using blended sharing factors. In the example given above, a company that does not use competition may see a reduction in their overall sharing factor, as we may not have confidence in the baseline costs of the project. A company electing to run this project through a competition process would benefit in two ways:
- The cost of the project would be excluded from the calculation used to derive the blended sharing factor at the outset of the control. This exclusion of uncertain costs should increase their overall sharing factor.
  - Having run the competition to reveal the market price, we should have higher confidence in the cost of the work. We could then recalculate the blended sharing factor and this should increase their overall sharing rate.

CSQ61. Do you agree with how we have described native competition? Do you agree we should explore the proposals described above to enhance the use of native competition? Are there any other aspects we should consider?

CSQ62. How do you think competition undertaken by network companies should be incentivised? Is the use of totex the best approach? Will this ensure a level playing field between network and non-network solutions including the deployment of flexibility services?

CSQ63. What views do you have on an approach where totex allowances would be based on costs revealed through competition, with a margin or fee for the competition-running entity?

## **Interlinkages with other aspects of RIIO-2 and wider work**

### Consideration for the Electricity System Operator (ESO)

- 8.97 If, subject to consultation and further policy development, the decision is taken that the ESO should take on the function of running early or late competitions, then we would need to consider incorporating that into the scope of the ESO price control (see ESO Price Control Annex). We would also need to determine how best to incentivise the ESO to undertake this activity.

### Considerations for Distribution System Operation (DSO)

- 8.98 The role of DNOs undertaking Distribution System Operation (DSO) functionality, as active managers of their networks and facilitators of competition, will continue to progress.<sup>79</sup>
- 8.99 As we develop our RIIO-2 price control for electricity distribution (ED-2, commencing in 2023), we will consider the emerging DSO roles and their potential place in supporting network competition. It will be essential that we identify any potential areas of conflict between the ESO and emerging DSO roles.
- 8.100 Careful consideration will be given to the remuneration and incentivisation of competition and whether the totex model ('native competition') is suitable for competition, if and where undertaken by an independent party discharging DSO responsibilities.

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<sup>79</sup> <https://www.ofgem.gov.uk/publications-and-updates/upgrading-our-energy-system-smart-systems-and-flexibility-plan-progress-update>

Considerations for gas sectors

- 8.101 In gas, the system operation function is undertaken by National Grid Gas Transmission (NGGT). Unlike the ESO in electricity transmission the GSO function is not being separated from National Grid's gas transmission network activities.
- 8.102 It is our initial thinking that it may not be appropriate to use the GSO function within NGGT as the institution to run competitions without substantial increases in the separation between the GSO and GTO functions.
- 8.103 Some roles and responsibilities of facilitating competition in the gas sectors (such as auditing network competition processes or facilitating pre-construction requirements) may not necessarily require deep gas expertise.
- 8.104 In this context, we are seeking views on whether the ESO could have a role to facilitate competition in the gas sectors. We note that we are encouraging the ESO to expand its focus elsewhere (for example, in exploring the possibility for distribution networks to offer solutions to transmission system constraints).

CSQ64. Do you think the ESO could have a role to play in facilitating competition in the gas sectors?

## 9. Simplifying Business Plan assessment

**In this chapter, we outline our proposals for simplifying the process of assessing Business Plans.**

We are proposing new arrangements that will reward companies that bring us rigorous and ambitious plans with cost projections that are demonstrably efficient. We are proposing to remove the Information Quality Incentive (IQI) and replace it with a simpler process to determine totex sharing factors and Business Plan rewards and penalties.

**Consultation questions:** We seek views on all of the issues raised in this chapter. We ask specific questions on our proposals in relation to establishing Business Plans and totex incentives. In your response, please provide evidence and alternative proposals, where relevant. A full list of questions is available at Appendix 6.

### Business Plan and totex incentives

#### Introduction

- 9.1 Incentives in RIIO-2 will provide companies with opportunities to earn higher or lower returns depending on their performance. Network companies gain a financial benefit if they exceed targets for output delivery or spend less than the allowance they have been set. Companies earn a lower return if they overspend or perform below targets.
- 9.2 In setting cost allowances and output targets, we consider the expenditure and performance projections that network companies provide in their Business Plans. Well-justified and stretching cost and output forecasts are important in ensuring the underlying basis of the RIIO-2 settlement is good value for money for consumers.
- 9.3 An effective incentive regime ensures targets and allowances are set at the right level by encouraging companies to submit ambitious and accurate forecasts. It could also reward companies for committing to meet our expectations for greater innovation and competition, address issues associated with vulnerability and engage effectively with consumers.
- 9.4 The responses to the RIIO-2 framework consultation and our own analysis have led us to conclude that the elements of the RIIO-1 framework that sought to achieve these aims, namely the Business Plan incentive ('Fast-Track') and the Information Quality Incentive (IQI), were not as effective as we believe they needed to be.
- 9.5 In this section, we propose a new Business Plan incentive and an alternative approach to setting sharing factors under the totex incentive mechanism for electricity and gas transmission and gas distribution companies. We have combined our assessment of these approaches as we consider them complementary in our aim of improving the quality of the Business Plans we receive.
- 9.6 The ESO will be subject to different arrangements and these are set out in the sector-specific annex.

## Summary of RIIO-2 Framework Decision

9.7 In the RIIO-2 Framework decision,<sup>80</sup> we:

- Signalled our intention to reassess the totex incentive mechanism, and presented early thinking on two possible options: a) a simplified and intensified IQI and b) a totex cost sharing mechanism similar to the one used by Ofwat in PR19;
- Decided to remove early settlement of Business Plans for the electricity transmission (ET), gas transmission (GT) and gas distribution (GD) sectors and to develop alternative incentives for Business Plans as part of our work on the sector specific methodologies.

9.8 We have since introduced an additional option for the totex incentive mechanism ('blended sharing factors')<sup>81</sup> and developed in further detail our proposals for a new Business Plan incentive.

### Our proposed approach for RIIO-2

9.9 Sharing factors for totex outperformance or underperformance should reflect how much confidence we have in our ability to set baseline costs independently from company forecasts. Where we have high confidence, companies should have stronger incentives to beat allowances. Where our confidence in setting allowances is low, incentives should be weaker.

9.10 We want companies to provide us with high quality information in their Business Plan. We may reward companies if they provide us with information that is not available to us, that helps us set a more accurate control that delivers greater benefits than would otherwise be the case. If companies do not provide us with the information that we ask for, or provide us unambitious, poor quality information, then financial penalties may be appropriate.

9.11 This section starts with a description of a proposal for an overarching Business Plan incentive. We then describe our proposals for the totex incentive mechanism, including our proposal to remove the IQI.

### Business Plan incentive

9.12 The Business Plan incentive is intended to encourage companies to provide us with information that enables us to set a better price control. This information may come in many forms but could include more stretching cost forecasts or output targets than we may have otherwise set.

9.13 Our proposal for a Business Plan incentive includes the following elements:

- a four stage assessment process of Business Plans. We propose that that this process<sup>82</sup> would consider the level of ambition that is reflected in cost forecasts<sup>83</sup> and on qualitative elements. These qualitative elements may include elements such as output delivery commitments, quality of stakeholder engagement, effective proposals on dealing with uncertainty, approach to enabling whole system solutions, competition and innovation. We are

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<sup>80</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/07/riio-2\\_july\\_decision\\_document\\_final\\_300718.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/07/riio-2_july_decision_document_final_300718.pdf)

<sup>81</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/09/business\\_plans\\_and\\_totex\\_incentive\\_workshop\\_-\\_26\\_september\\_2018.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/09/business_plans_and_totex_incentive_workshop_-_26_september_2018.pdf)

<sup>82</sup> The scoring matrix is based on a 50% cost ambition score and 50% score on the other qualitative elements.

<sup>83</sup> We propose that this comparison between forecasts would take place only after companies have submitted their Business Plans and companies would not have sight of an Ofgem forecast in advance.

publishing a guidance document with more detail on the information that should be provided in the Business Plan, and how this may be assessed

- an upfront penalty regime for companies that do not meet our minimum requirements for Business Plans. We propose that this penalty will be a fixed value for each company linked to their totex allowance
- assigning a score based on our assessment of their costs and a score based on the qualitative elements of their Business Plans. These two scores will determine their position on the matrix below
- *allowing plans that offer 'value' or 'good value' to earn an upfront reward linked to their allowed totex.* The size of the reward for each company will depend on its totex allowance and the number of companies that qualify for a reward in its sector
- *assigning 'low value' or 'poor value' plans a penalty linked to their allowed totex*

9.14 For the purposes of this consultation, we consider that a reward/penalty for the incentive should be within the range of  $\pm 2\%$  of totex equivalent. This is roughly equivalent to a 7% under or overspend.<sup>84</sup> We believe that rewards/penalties above the proposed level of  $\pm 2\%$  of totex equivalent may outweigh incentives on delivery of efficient costs.

**Table 2: indicative matrix of Business Plan categorisation and corresponding incentives**

Quality/cost	Good	Average	Poor
Good	Good Value Max +2% totex equivalent	Value Max +1% totex equivalent	Standard
Average	Value +1% totex equivalent	Standard	Low Value -1% totex equivalent (fixed)
Poor	Standard	Low Value -1% totex equivalent (fixed)	Poor Value -2% totex equivalent (fixed)

9.15 The red/orange cells result in an upfront penalty equivalent to a certain percentage of totex, grey cells result in no reward or penalty and green cells result in companies receiving a share of a reward.

9.16 The greater the number of companies that are scored as 'green', the more the reward for individual companies is diluted. The prospective reward value for individual companies is relative to each company's size (based on a share of their totex). We believe this would provide benefits in both introducing a competitive

<sup>84</sup> Based on sharing factor approximately mid-point on the range for sharing factors that we are consulting on below

dynamic and in limiting the size of the potential reward at a sector level to ensure it is not excessive.

- 9.17 We expect companies to come forward with good quality Business Plans and efficient cost forecasts.
- 9.18 Additionally, we are proposing not to include the Business Plan incentive within the scope of potential return adjustment mechanisms. This means that any benefit that a firm receives on the back of submitting a high quality Business Plan will not risk being eroded as a consequence of their subsequent performance, or the performance of the sector as a whole. This approach will sustain the strength of the Business Plan incentive and reflect the immediate value that a Business Plan that offers additional value (e.g. the green shadowed boxes in the diagram above) provides.
- 9.19 Overall, we expect companies that are both rigorous and ambitious in their Business Plans in comparison to their peers to be able to benefit from substantial rewards.
- 9.20 The indicative criteria for scoring cost and quality of plans are outlined in Appendix 3, with more detail to be provided in our updated Business Plan guidance document. We are seeking views on these and will finalise them in our decision in May 2019, so companies are aware of the standards that we will apply on both counts. We also ask additional questions on the detailed design of the incentive in the appendix.

### **Business Plan and totex incentives questions**

We welcome stakeholder views on our approach to the Business Plan incentive in RIIO-2, including:

CSQ65. What are your views on our proposed approach to establishing a Business Plan incentive?

We provide further information on our approach to setting Business Plan and totex incentives in appendix 3 and the questions below repeat those we ask in this appendix.

CSQ66. Under the blended sharing factor approach, should the scope of stage 2 evaluation of cost assessment be based on the entire totex or only on cost items that we consider we can baseline with high confidence?

CSQ67. What should be the method for categorising cost forecast as High, Medium or Low? Are the indicative boundaries of 1.0 (High to Medium) and 1.04 (Medium to Low) appropriate?

CSQ68. What should be the range for the Business Plan reward/penalty? Is the range of  $\pm 2\%$  of totex equivalent appropriate for incentivising high quality and ambitious Business Plan submissions (e.g. Value or Good Value)?

### **Totex incentive mechanism**

#### Changes since the RIIO-2 Framework decision

- 9.21 As part of the RIIO-2 Framework decision we provided detail on our early thinking on different options for incentivising good quality totex forecasts:



- A simplified and intensified IQI<sup>85</sup> - which sets sharing factors and provides an upfront incentive based on a comparison of companies view of the company's view of costs compared to ours, or
  - The Ofwat PR19 based cost sharing mechanism – which sets favourable sharing factors to companies' based on how their forecast compares against ours.
- 9.22 Since then, our thinking has evolved and we have designed an additional option for consideration – blended sharing factors (this is described in more detail below). We have developed this option as we believe that there should be a stronger link between companies' earning potential (e.g. sharing factors) and the rigour of companies' totex submissions.
- 9.23 We propose that the selected mechanism would operate in conjunction with the Business Plan incentive described above.
- 9.24 This sub-section is organised in three parts as follows: we first explain why we propose to remove the IQI. Then, we describe our proposal on blended sharing factors. Finally, we assess the different options against each other and indicate a preferred approach.

#### Our aims for the totex incentive mechanism

- 9.25 We incentivise efficient expenditure through providing companies with a share of any underspend or overspend of their total expenditure (totex). The remainder is passed onto consumers.<sup>86</sup> The proportion of under or overspend that companies share with consumers is called the 'sharing factor'. The totex incentive mechanism approach incentivises companies to find cost efficiencies and for the benefits of these efficiencies to be shared with consumers.
- 9.26 In RIIO-1, to encourage companies to provide accurate and ambitious cost forecasts in their Business Plan we used the Information Quality Incentive (IQI). This provided an upfront reward or penalty based on the companies' cost forecasts versus our view of costs and determined the sharing factor.

#### Proposal to remove of the IQI

- 9.27 We are proposing to remove the IQI. This is because we think the fundamental assumptions that are essential to make it effective do not apply in practice.
- 9.28 In theory, the IQI should incentivise companies to share the correct information with us by maximising their profit the closer their expected spend is to their forecast. However, our experience has indicated that it has had limited impact. Companies in RIIO-1 systematically provided higher forecasts than their actual spending and we have not seen evidence that the theoretical assumptions that are required in order to make the IQI effective are achievable in practice.
- 9.29 In the Framework decision, we proposed an 'intensified and simplified IQI'. We note that although this is likely to represent an improvement to the IQI used in RIIO-1, this option does not address the underlying issues we have identified with the IQI.

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<sup>85</sup> The IQI has been in use since DPCR5 (2005) and is intended to maximise the rewards companies get the closer their expenditure forecasts are to their actual expenditure.

<sup>86</sup> Where companies spend above their allowed totex, they share some of their overspending with consumers.

- 9.30 Firstly, we consider the assumptions that underpin the IQI, essential to making it effective, are not satisfied:
- Our forecast is not wholly independent to the companies' view, and the IQI's effectiveness is sensitive to companies' perception of their ability to influence our forecast. Therefore, a company that believes it will be successful in influencing our view of cost could be incentivised to submit a higher cost forecast. They may consider that the value of higher cost allowances outweighs the impact of a penalty (if any) applied through the IQI. Even if a company incurs an upfront penalty through the IQI, the benefit from underspending against allowances could be more valuable to the company.
  - The IQI works under the assumption that companies always seek to maximise their IQI reward and are risk or loss neutral.<sup>87</sup> In practice, this may not be an accurate assumption. Companies may prefer to submit a forecast that will limit the possibility of losses, or limit the range of possible outcomes. This means that companies may prefer to submit higher forecasts and forgo some potential profit if this reduces the risk of overspending.
  - The IQI is complex and may not be easy to communicate internally within companies. Furthermore, for the IQI to work, a company's internal remuneration structure is, to an extent, required to align with the IQI and reward individuals for both the accuracy and ambition of the forecasts they provide to input to the Business Plan. We have not observed or been presented with any evidence that companies align their internal remuneration structure in such a way.
- 9.31 Secondly, we consider the IQI may be difficult to calibrate. Its formulaic structure could be effective in penalising very high levels of inaccurate forecasts, but less effective in penalising lower levels of inaccuracy.<sup>88</sup>
- 9.32 Thirdly, that the IQI by itself may not be sufficient to incentivise companies to provide us with Business Plans that are high-quality in all aspects, as opposed to a set of expenditure forecasts. The IQI sets both sharing factor rates and an upfront reward or penalty based on a single comparison between our view of efficient expenditure and companies' forecasts. In doing so, it does not account for qualitative elements such as rigor of cost justification and proposals for mitigating uncertainty. Our concern is that the IQI alongside another upfront incentive may result in a duplication of rewards and penalties.
- 9.33 In the Framework decision, we proposed an 'intensified and simplified IQI'. We note that although this is likely to represent an improvement to the IQI used in RIIO-1, this option does not address the underlying issues we have identified with the IQI.
- 9.34 Based on the above, we propose to remove the IQI as a means of incentivising high quality totex submissions and to replace it with an alternative mechanism.
- 9.35 We have set out below two options that we consider are more viable: a blended sharing factor and an approach modelled on the mechanism used by Ofwat for PR19.

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<sup>87</sup> ie companies value the potential of losses equally to profit as part of their decision making, and are indifferent to a wide range of possible outcome as long as an expected outcome is the same.

<sup>88</sup> Even with the intensified versions of IQI we tested, a company that submits a forecast which is 15% higher than its actual costs would only be exposed to a penalty of roughly equal to 1% of its totex (assuming the regulators' forecast is equal to the companies' actual spending).

CSQ69. Do you agree with our assessment of the IQI? (If not please provide your reasons). Do you agree with our proposal to remove the IQI?

#### Option 1: Blended sharing factor

- 9.36 The rationale behind our proposal for a blended sharing factor is that the sharing factor should reflect the strength of confidence we have in our ability to set cost allowances. The sharing factor will be higher the more confident we are that cost allowances have been derived using benchmarks that are independent from companies' influence. Where this is the case, we can have greater confidence that underspending would be a result of companies finding genuine cost efficiencies, rather than reflecting allowances that were set incorrectly.
- 9.37 This also protects companies in a period of uncertainty. They will have a low sharing factor when their future expenditure is unlikely to reflect their past performance. This may limit the benefit they could gain from underspending, but equally it exposes them less to the impact of overspends that may arise.
- 9.38 We also believe that the sharing factor can serve as an incentive on certain company behaviours. For example, by providing us with more compelling and better justification for proposals that efficiently allocate risk between consumers and companies.

#### *How would the blended sharing factor be determined*

- 9.39 Under the proposed blended sharing factor approach, we would determine the proportion of a company's proposed totex in which we have high confidence based on our ability to independently set a baseline cost allowance. In the following sections, we refer to this type of costs as 'high-confidence baseline'. Other elements would be considered 'low-confidence baseline' costs.
- 9.40 The greater the proportion of high-confidence baseline costs a company has in its plan, the higher its sharing factor. As part of this proposed approach, we would also take into consideration evidence provided by companies to justify its costs and proposals it makes for mechanisms to deal with uncertainty.
- 9.41 In the calculation of the sharing factor, we will assess cost elements<sup>89</sup> individually. The sharing factor attached to each cost element will be based on whether we consider it is a high-confidence baseline cost, or not.
- 9.42 We would then calculate an overall sharing factor for all expenditure subject to the totex incentive mechanism based on a weighted average sharing factor of the cost items. Hence, the proposed approach would yield a single sharing factor for the entire totex, not different sharing factors for different cost items. This is illustrated in the example in the illustration below.

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<sup>89</sup> This could be done at the level reported as part of the RRP submissions or at another suggested level of disaggregation.

### Illustrative example of a blended sharing factor calculation

Considering a case with three cost items. In this indicative example, high-confidence baseline costs are assigned a sharing factor of 50% and low-confidence baselines costs are granted a sharing factor of 15%

	Cost item A	Cost item B	Cost item C
Company view	250	500	250
Baseline confidence	High	Low	High
Sharing factor	50%	15%	50%
Weighted sharing factor	$\frac{250 * 50\% + 500 * 15\% + 250 * 50\%}{250 + 500 + 250} = 32.5\%$		

This yields a weighted average sharing factor of 32.5%. This sharing factor is then applied to the total amount of costs (1000).

- 9.43 We will provide further detail on the proposed process for calculating the blended sharing factor in our methodology decision, should we decide to progress with this approach.
- 9.44 In determining whether a cost item is treated as high-confidence baseline, we may consider a number of factors. The following is a non-exhaustive list of those that may be applicable.
- **Predictability:** the strongest evidence a company could provide would be a direct link to historical expenditure. The greater the proportion of its expenditure where this is the case, the more a company is likely to have a higher sharing factor as any underspend is more likely to reflect lower costs to consumers.
  - **Ability to effectively deal with uncertainty:** high-confidence baseline costs may apply where companies suggest effective uncertainty mechanism or price control deliverables (PCD). This would be the case where the proposed approach would be effective in reducing the range of possible outcomes<sup>90</sup> in areas where companies are not best placed to control uncertainty. For instance, some of a company’s expenditure may involve unit costs that compare well to historical performance, but the volume of units may be difficult to forecast. Here a company may identify a volume driver that adjusts costs in line with the realised level of demand.
  - **Quality of evidence:** Some cost elements, where past expenditure may not be a good proxy for future expenditure, may not meet the criteria required to be designated as high-confidence baseline costs. However, there may still be merit in assigning a sharing factor for these cost elements that is higher than the sharing factor for ‘low-confidence baselines’. An example of this would be

<sup>90</sup> For example, by committing to apply a certain option to deliver an outcome in areas where a number of options are available.

where companies provide us with a robust justification for their expenditure supported by independent information that we can verify. This could be based on a comparison with other companies' costs for the same activity, or international comparisons where appropriate.

9.45 We welcome views on this approach. Please refer to the question at the end of this section.

#### Option 2: Ofwat style cost sharing mechanism

9.46 The Ofwat matrix gives companies a higher sharing factor the lower their view of totex is in comparison to Ofwat's view. In doing so, it aims to incentivise companies to submit stretching cost forecasts.

9.47 Another feature of the Ofwat mechanism is that it applies different incentive rates on over and underspend. This rewards companies for taking more risk by allowing them to retain a higher share of their savings if they underspend, and sharing more of their expenditure above their allowances if they overspend.

9.48 Further detail and explanation of the Ofwat cost sharing mechanism was previously provided in our RIIO-2 Framework decision.<sup>91</sup>

#### Assessment of the totex incentive mechanisms

9.49 There is considerable interplay between how we incentivise totex delivery and the quality of information we receive in Business Plans. In assessing the different totex incentive mechanism options, we have considered whether these options, in combination with the proposed Business Plan incentive, satisfy the following assessment criteria:

- Ability to set a sharing factor based on an independent view of costs: the more confidence we have in our ability to forecast independently (e.g. by being able to use historical information), the more certainty we have that potential underspending could represent improvement over time
- Incentive on companies to provide robust cost justification and mitigation measures against uncertainty
- Ability to drive company ambition in cost forecasts: in terms of incentivising companies to submit cost that are lower than their historical costs
- Ability to mitigate behavioural biases: the extent to which the options counteracts companies' tendency towards risk and loss aversion
- Ease of implementation: ability of companies to respond to the incentive and for us to effectively implement it

9.50 We have scored the options against each other using a scale of High, Medium and Low. See assessment in Table 3.

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<sup>91</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/07/riio-2\\_july\\_decision\\_document\\_final\\_300718.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/07/riio-2_july_decision_document_final_300718.pdf), p.80-81.

**Table 3: Totex incentive comparative assessment**

Criteria	Blended sharing factor	Ofwat cost sharing mechanism
Ability to set a sharing factor based on an independent view of costs	High – a high proportion of costs where we are less confident that our estimates are independent are likely to contribute towards a lower sharing factor. The blended sharing factors approach incentivises companies to provide us with more rigorous information which could increase our confidence in setting independent baselines.	Low – where we have no independent view of costs (e.g. past information does not exist or is irrelevant), we are more likely to rely on companies’ information. This could make our forecast closer to the companies’, and may lead to higher sharing factors under this approach.
Incentive on companies to provide robust cost justification and mitigation measures against uncertainty	High – where justification is not well-evidenced or companies’ proposals are not tackling uncertainty, this is likely to lead to lower sharing factors.	Medium – companies are incentivised to provide good justification, but this is mainly through the Business Plan incentive and not through the totex incentive mechanism
Ability to drive company ambition in cost forecasts	Medium – companies are only incentivised to provide lower cost forecasts through the Business Plan incentive but are not granted a higher sharing factor if they do so.	High – companies are granted a higher sharing factor if they provide a forecast which is equal or lower than our forecast. This is on top of the upfront Business Plan incentive they may receive for providing ambitious forecasts. This may duplicate rewards.
Ability to mitigate behavioural biases	Medium – companies that provide poor justification and comparability with historical spend are likely to receive a lower sharing factor. This will protect them against losses arising from overspend. As a result, companies that are risk and loss averse may be satisfied with a lower sharing factor. These companies may face an upfront penalty through the Business Plan incentive at the stage where we evaluate costs. For instance, if company’s view of costs is higher compared to our view of costs.	High – the asymmetric sharing factors better protects companies that submit more stretching Business Plans in the event they overspend. This therefore can counteract behavioural biases such as loss and risk aversion
Ease of implementation	Low – the assessment of confidence rating by cost items may add a layer of complexity.	Medium – the mechanism is relatively simple, but heavily relies on the cost assessment process in computing a sharing factor

- 9.51 In our assessment, we have placed more weight, qualitatively, on the first three assessment criteria as we consider those address the main shortcomings of the approach we used in RIIO-1. In those three areas, the blended sharing factor approach performs better overall than the Ofwat cost sharing mechanism.
- 9.52 In particular, the blended sharing factor option is better at reflecting the level of confidence we have in forecasts and ensuring that companies are more likely to benefit when underspending due to genuine efficiency improvements. Hence, the blended sharing factor approach provides a benefit by focusing on rigour. This could incentivise companies to provide us with information that would allow us to set allowances with higher levels of confidence.
- 9.53 In contrast, the Ofwat cost sharing mechanism mainly focuses on cost ambition and rewards it through higher sharing factors. In doing so, it does not link to the

- level of confidence in setting independent forecasts. We also note the cost ambition is assessed through the proposed Business Plans incentive. Accordingly, the Ofwat approach may duplicate incentives on that aspect of Business Plans if implemented alongside the Business Plan incentive.
- 9.54 It is our view that cost ambition is more effectively rewarded through upfront incentives. This is since a company that puts forward ambitious totex forecast may find it more difficult to underspend it. Hence, lower sharing factors may be less effective in incentivising cost ambition as companies may be less able to benefit from them.
- 9.55 We consider this is the most important distinction between the two approaches and critical in ensuring our approach protects the interests of existing and future consumers.
- 9.56 While we think the Ofwat style approach has merits in driving ambition and mitigating behavioural biases, it may be more suitable for sectors that are undergoing a smaller degree of change and where past expenditure is a better indicator of future costs. We also note that we aim to drive ambition in cost forecasts through the upfront rewards offered by our proposed Business Plan incentive.
- 9.57 We therefore propose using the blended sharing factor approach alongside the proposed Business Plans incentive for the GD, GT and ET sectors.

CSQ70. Do you have views on the effectiveness of the blended sharing factors approach and in particular the incentive it provides on companies to submit more rigorous totex submissions?

CSQ71. Do you agree with our assessment of the blended sharing factor in comparison to the Ofwat cost sharing mechanism? If not, please provide your reasons.

CSQ72. Considering the blended sharing factor, what are your views on the factors (e.g. predictability, ability to effectively deal with uncertainty) or evidence that could be used to distinguish between costs that can be baselined with high confidence and other costs?

CSQ73. Do you have any views on the level of cost disaggregation we should apply to calculate the blended sharing factors approach on (regulatory reporting pack level or another level)?

CSQ74. Do you have any views on whether the proposed Business Plan incentive coupled with the blended sharing factor will drive the right behaviours?

### Other considerations

#### *Proposal on totex sharing factors range*

- 9.58 The level of the proposed totex 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, or may choose to capitalise expenditure when it is not in consumers' benefit.

- 9.59 Whether we proceed with using a blended sharing factor or an approach modelled on Ofwat PR19 mechanism, we are considering setting a sharing factor (the proportion of over and underspend that a company retains) that is within a range of 15% to 50%. The sharing factor that companies would receive within this range would depend on our assessment of their totex submission and our choice of totex incentive mechanism.
- 9.60 For the upper end of the range, we have considered the impact of sharing factors on the resulting level of underspending. We have not seen evidence that sharing factors below 50% systemically increase companies' effort to find cost efficiencies. Furthermore, we note that in RIIO-1 a sharing factor of 50% has been used.
- 9.61 In considering the lower end of the range for setting the sharing factor, we have conducted analysis on companies' financial incentive to underspend in comparison to capitalising their allowance.
- 9.62 We considered sharing factors, perceived differences between allowed and actual cost of equity, and capitalization rates. From a pure Net Present Value (NPV) perspective, companies still have incentive to underspend their allowance even at sharing factors of 10 to 15%.
- 9.63 We acknowledge that companies may have additional drivers other than positive NPVs as part their investment decisions. Nevertheless, our analysis offers assurances that low sharing factors do not incentivise companies to capitalise expenditure over seeking cost efficiencies.
- 9.64 Another factor we may wish to consider in setting sharing factor would be the scope for future productivity improvements. Where a sector has an increased scope to implement productivity improvements, this might justify a higher sharing factors than a sector where there is less opportunity for further improvements.

CSQ75. What views do you have on our assessment of the sharing factor ranges?

CSQ76. Are there any other factors that you think we should take into account in the design of sharing factors?

CSQ77. Do you have any evidence on the scope for productivity improvements in the different sectors?

#### *Considerations in applying changes to sharing factors during the price control*

- 9.65 In RIIO-2, we are considering a range of different mechanisms that could result in totex allowances set at the outset of the price control needing to either increase or decrease as companies progress through the period. These mechanisms are necessary to deal with uncertainty at how future energy requirements may impact on expenditure plans.
- 9.66 We consider that regardless of the proposal, there may be circumstances when it is appropriate to recalculate the sharing factor to reflect changes in the composition of expenditure. In the case of the blended sharing factor approach, this may be because the proportion of a company's expenditure that we can baseline changes as allowances adjust in line with increasing (or decreasing) volumes. Equally the quality of cost information provided during the period, for instance at a reopener, may have led to a different sharing factor if this had been provided at the time of setting the price control.



- 9.67 We recognise however, that frequent adjustments to the sharing factor are likely to add complexity and resource burden to the process. We are therefore considering limiting our use of these.
- 9.68 We therefore propose that adjustments to sharing factors would only take place during the closeout process and would be subject to a pre-set totex materiality threshold. We currently consider that these adjustments might account for volume drivers and re-openers. Our design and application of return adjustment mechanisms (see Chapter 11) would need to take into account the impact of changes in sharing factors.

CSQ78. Do you have views on whether adjustments to sharing factor levels after the price control is set are desirable or necessary?

If so:

CSQ79. Under which circumstance do you consider such adjustments should take place?

CSQ80. When do you consider an adjusted sharing factor should be calculated?

## 10. Fair returns and financeability

**In this section, we summarise our proposed approach to addressing a range of financial issues for the gas distribution, gas transmission and electricity transmission price controls.**

These include the methodologies we propose to use to determine the cost of debt and equity, our approach to assessing financeability and our further work on developing a cashflow floor as a possible additional measure to address potential downside financeability concerns. We also discuss our proposed treatment of a range of other financial issues, including corporation tax and how we intend to transition from using RPI to CPIH when calculating RAV and allowed returns. A separate Finance Annex is published alongside this document that contains more information on our proposals.

We also describe our proposals for return adjustment mechanisms in each sector. We intend that these will be failsafe mechanisms that provide protection for investors and consumers against much lower or higher returns than anticipated.

**Consultation questions:** We seek views on all of the issues raised in this chapter. We ask specific questions on our proposed approach on financial issues and for implementing return adjustment mechanisms. In your response, please provide evidence and alternative proposals, where relevant. A full list of questions is available at Appendix 6.

### Introduction

- 10.1 The costs of operating and developing networks include the financing costs that they incur. These include the returns that we allow for debt and equity investors. We use incentives to encourage companies to drive down costs and improve service quality. These incentives mean that a company's actual return can be higher or lower than its allowed return.
- 10.2 In this chapter we describe and consult on our proposed approach to setting a number of financial parameters, including:
  - an updated cost of debt methodology,
  - an updated cost of equity methodology,
  - our approach to financeability,
  - our approach to corporation tax,
  - the transition to CPIH for the purposes of indexing RAV and calculating returns, and
  - a number of other finance issues.
- 10.3 We also consult on our proposed approach to implementing return adjustment mechanisms to protect against lower or higher than expected returns.
- 10.4 The primary aim of this consultation is to propose an appropriate methodology for setting cost of capital allowances at the Final Determination stage in 2020. However, for illustrative and Business Planning purposes, we estimate working

assumptions below as if we were to apply our proposals under today's market conditions using the proposed methodologies.

## Financial issues

### Inflation expectations

- 10.5 We begin with inflation expectations, as per the Office for Budget Responsibility (OBR), because these are necessary for estimating the other finance issues that we subsequently address (cost of debt and cost of equity).
- 10.6 We present information from OBR's October 2018 forecasts, as follows:

**Table 4: Inflation expectations: OBR's October 2018 forecast<sup>92</sup>**

YE 31st December	2018	2019	2020	2021	2022	2023
CPI	2.58%	2.05%	1.97%	2.12%	2.08%	2.04%
RPI	3.46%	3.14%	3.05%	3.16%	3.11%	3.07%

- 10.7 At this stage, we focus on 2023, as the longest horizon forecast available, for the purposes of estimating working assumptions for RIIO-2. At this time, we are not aware of a suitably independent forecast for CPIH. However, given that we decided in the Framework decision to move towards CPIH, we assume that the forecast for CPI is equal to CPIH. On this basis, we derive a difference between RPI and CPIH (the RPI-CPIH wedge) of 1.009%<sup>93</sup> based on the OBR forecasts for the year 2023.
- 10.8 Therefore, in the following sections we refer to a CPIH expectation of 2.04%, an RPI expectation of 3.07%, and an RPI-CPIH wedge of 1.01%.

### Cost of Debt

#### Introduction

- 10.9 The price control allows companies to recover the costs of running their networks including the costs of financing their activities. These are composed of the returns to equity holders (the cost of equity discussed in the next section) and the returns to the debt holders who lend money to the companies.
- 10.10 The current RIIO-1 price control sets an allowance for debt costs using a published benchmark index of bond yields. We assume that our notional company can borrow at a rate consistent with this benchmark index. We refer to this approach as full indexation. It has been successful in reducing forecast error compared to previous approaches, thus reducing consumer bills.
- 10.11 In RIIO-1, the cost of debt allowance is calculated using a rolling average of outturn benchmark rates. This benchmark is equal to an average of two iBoxx bond indices (non-financials A rated and non-financials BBB rated). Electricity transmission, gas transmission and gas distribution sectors have allowances that are equal to a 10-year rolling average of historical rates. In addition, there is a company specific arrangement for SHE-Transmission.

<sup>92</sup> See CPI & RPI worksheets here: <https://obr.uk/download/historical-official-forecasts-database/>

<sup>93</sup> Derived as:  $(1+3.07\%) / (1+2.04\%)-1$ . We display three decimal places solely to allow stakeholders to derive the subsequent tables.

10.12 In our RIIO-2 Framework consultation, we sought to establish whether the methodology applied for RIIO-1 remains appropriate for RIIO-2.

#### Summary of RIIO-2 Framework consultation and Framework decision

10.13 In our Framework consultation we proposed cost of debt principles to help guide our methodology. We also set out three preliminary options, summarised as full indexation, partial indexation, and full pass-through of debt costs.

10.14 In the consultation, we also noted a high bar of evidence would need to be met before we would materially alter our existing approach. In our Framework decision we confirmed the proposed principles and ruled out the full pass-through option for cost of debt. We committed to developing the remaining two options and consulting on our preferred way forward in December.

10.15 We also stated we would explore the potential to share under/outperformance on the cost of debt index with consumers.

10.16 Our Framework decision to transition from RPI to CPIH for inflation measurement also means we must consider how to calculate the real cost of debt allowance in real CPIH.

#### Developing the cost of debt methodology

10.17 The finance annex describes the potential benefits and challenges of the indexation options and provides options for calculating a real CPIH cost of debt.

#### *Partial Indexation*

10.18 In considering partial indexation, we assessed the relative merits of partial indexation in setting ex-ante allowances for debt by calculating an embedded debt allowance and adding a forecast new debt allowance. We identified some potential benefits of partial indexation. It may afford greater flexibility to include historical (pre index) debt costs and it could potentially reduce the difference between allowances and actual debt cost for some companies.

10.19 However, we also identified a number of potential challenges of partial indexation. These include weakened incentive properties, potential to introduce greater actual cost versus allowance variances year to year if market rates move, potential forecast error, reduced transparency and greater complexity.

#### *Sharing of debt outperformance/underperformance*

10.20 We considered whether companies should be compelled to share any actual debt cost out/underperformance (versus the cost of debt allowance) each year with consumers. This would involve higher bills for consumers if companies underperformed relative to allowances or lower bills for consumers if companies outperformed relative to allowances.

10.21 We considered that the potential benefits of debt variance sharing are that it may reduce the magnitude of individual company out/under performance due to differing actual debt costs and that it may improve credit metrics for some outliers that may otherwise face financeability challenges.

10.22 However, we identified a number of potential challenges, including implementation issues, increased allocation of financing risk to consumers, exposing consumers to the impacts of companies pursuing higher risk strategies and the potential for manipulation.

### *Deriving CPIH-based allowances*

- 10.23 The Framework decision set out our intention to move away from RPI to CPIH when calculating RAV and allowed returns. We discuss in the finance annex (Indexation of RAV and calculation of the allowed return) our proposal to use CPIH from RIIO-2 onwards (1 April 2021 for GT, ET and GD) for the purposes of calculating RAV indexation and allowed returns. We do not propose to phase the move away from RPI, as discussed further below.
- 10.24 We identify two methods of calculating a real CPIH cost of debt. The first retains the RIIO-1 breakeven approach but includes an expected RPI-CPIH wedge when deflating the nominal iBoxx yields. The second deflates the nominal iBoxx by an expected value for CPIH directly and uses the Office for Budget Responsibility's longest-term CPI forecast as a reasonable proxy.

### Proposals for cost of debt methodology

- 10.25 In the finance annex, we elaborate on our analysis and seek stakeholder feedback on the following proposals:
- Ruling out partial indexation unless new information provides reasons to re-assess this position. We propose retaining a full indexation approach.
  - Ruling out an annual within-period debt sharing mechanism.
  - Continuing to assess the appropriateness of expected cost of debt allowances under a full indexation approach, and whether any changes in methodology would be warranted.
  - Consideration of the relative merits of the methods for calculating a real CPIH cost of debt.

### Next steps

- 10.26 We intend to assess the appropriateness of expected allowances by considering company-provided and publicly-available information relating to:
- Interest and financing costs as submitted by companies during the Regulatory Financial Performance Report process, with possible adjustments for bond yield to maturity where significantly different to bond coupons.
  - Information relating to debt maturities, repurchases and re-financings, where appropriate and justified<sup>94</sup>.
  - Expected new financing requirements and timing.
- 10.27 We will also consider the halo effect, debt issuance costs and whether a smaller company allowance may be appropriate in consideration of frequency and/or costs of issuance compared to that assumed by full indexation. In line with RIIO-1, we may consider adjusted indexation mechanisms (such as that used for SHE-T in RIIO-1) for unusual company-specific circumstances, if appropriate and justified. We will require more information from the companies in order to estimate the appropriate allowances for RIIO-2, including information on the companies' plans for investment in the networks. We intend to provide an update on the mechanism for deflating the nominal iBoxx indices in the specific methodology decision.

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<sup>94</sup> In particular, we are aware of significant refinancing costs associated with the sale by National Grid of its Gas Distribution businesses to Cadent. We are considering how refinancing costs should most appropriately be factored into our analysis for RIIO-2 allowances.

10.28 Although determinations for cost of debt will depend on our analysis following Business Plan submission, we recognise that a cost of debt assumption can be helpful for producing Business Plans. With this in mind, we have calculated a working assumption for the cost of debt allowance.<sup>95</sup>

**Table 5: A working assumption on the cost of debt for GD2 and T2**

YE 31st March	2022	2023	2024	2025	2026	RIIO-2 Average
10 yr Trailing Average (CPIH)	1.96%	1.79%	1.70%	1.64%	1.59%	1.74%

### Cost of debt consultation questions

FQ1. Do you support our proposal to retain full indexation as the methodology for setting cost of debt allowances?

FQ2. Do you agree with our proposal to not share debt out-or-under performance within each year?

FQ3. Do you have any views on the next steps outlined in the finance annex paragraphs 2.22 to 2.25 for assessing the appropriateness of expected cost of debt allowances for full indexation?

FQ4. Do you have a preference, or any relevant evidence, regarding the options for deflating the nominal iBoxx as discussed at finance annex paragraph 2.14? Are there other options that you think we should consider?

## **Cost of Equity**

### Introduction

10.29 The cost of equity is an estimation of the return that equity investors (shareholders) expect. It is a significant part of the price control settlement. It is important because the energy sector requires investors that are willing to invest in utility infrastructure to meet consumer needs. The RIIO-1 price controls assumed a cost of equity of between 6.0% (for slow-tracked electricity distribution) and 7.0% (electricity transmission) in annual real RPI. The financial impact of each 10bps (10 basis points or 0.10% see glossary) on the cost of equity is worth approximately £172m<sup>96</sup> over the course of the RIIO-2 price controls.

10.30 UK regulators normally estimate the cost of equity using the Capital Asset Pricing Model ('CAPM') which we describe below and in further detail in the finance annex.

<sup>95</sup> We set out the assumptions used for calculating this working assumption in the finance annex.

<sup>96</sup> Calculated with £93,000m RAV, 63% gearing (RAV weighted average across sectors for RIIO-1), and a five-year period:  $0.1\% * (1-63\%) * £93,000 * 5 \text{ years} = £172\text{m}$ . We assume a RAV value of £93,000m (nominal) for illustration purposes. This is obtained by summing the 17/18 NPV neutral RAV return bases across sectors and converting to nominal (£66,113m) and growing by 5% a year to FYE 24/25 ( $£66,113 * (1+5\%)^7$ ). This is approximately the same result as growing each individual sector by their compound average growth rate until FYE 24/25. To convert to nominal, we use average RPI for financial years, where available, and assume 3% growth thereafter. In March, we referred to a RAV of £100,000m, whereas here we use more recent data and lower growth assumptions. Notional gearing of 63% is used, to be consistent with RIIO-1 average. A lower notional gearing working assumption is made below, but the RIIO-1 gearing is used here to isolate the effect of changing allowed equity returns. The current consultation does not apply to ED2, but represents our latest thinking on the cost of capital for networks. A full consultation for the ED2 price control will follow, including on whether the approach applies and whether ED2 may warrant a departure. It will present our best available evidence at that time. Approximately three-quarters of the savings presented are attributed to GT2, ET2 and GD2 which begin in 2021, but the total figure includes ED2 for completeness of the potential impact.

However, the CAPM is not the only way to estimate investor expectations. We describe below a number of cross-checks that we propose to consider.

10.31 We are seeking stakeholder feedback on our updated cost of equity methodology for which we propose a three step approach.

10.32 We recognise that the CAPM-estimated cost of equity represents an expected return rather than an allowed return, and seek views on how we propose to apply that distinction.

#### Developing the cost of equity methodology

10.33 We propose a three-step cost of equity methodology, where we would:

- a) Estimate the cost of equity using the CAPM.
- b) Cross-check the results of the CAPM against various other ways of estimating the cost of equity.
- c) Implement a distinction between expected and allowed returns.

10.34 The CAPM requires evidence regarding the underlying parameters: the risk-free rate, total market returns, and equity beta. The finance annex sets out in detail our proposed approach to these parameters.

#### *Risk-free rate*

10.35 The risk-free rate is the return an investor would receive from investing in bonds where there is no risk of the money not being repaid.

10.36 In the Framework decision we decided to estimate the risk-free rate by using current yields on long-dated index-linked government bonds. The decision also highlighted our concern that any forecast of the risk-free rate has the potential to be wrong and could result in consumers paying more than necessary, or investors earning lower returns than they should.

10.37 We propose to focus on 20-year gilts, as they are more stable than the 10-year or 5-year gilts. In addition, we note a 45-year RAV depreciation horizon implies an average life close to 22.5 years.

10.38 Our finance annex details why we propose to index the cost of equity to the risk-free rate. We note that indexation would allow the price control settlement to react to changing market circumstances. We are proposing to index only to the risk-free rate, and not to index total market returns or the equity risk premium which will continue to be updated at each price control.

10.39 The transition to CPIH requires us to take a view on estimating the risk-free rate in real CPIH. We propose either estimating a CPIH gilt from nominal gilts and a CPIH forecast, or RPI-linked gilts with an expected RPI-CPIH wedge.

#### *Total market returns*

The Total Market Return (TMR) is an estimate of the long-run returns investors get from investing in UK shares (equities).

10.40 In the Framework decision we concluded that the long-run outturn average of market returns is the best single objective estimate of investors' expectations of future total market returns. We also concluded that we should place due weight on forward-looking approaches and take account of the Competition Commission's

findings in NIE (2014). We also decided in the Framework decision to calculate the allowed return, and therefore the TMR, in real CPIH.

10.41 The finance annex proposes an approach to estimating total market returns in real CPIH, discussing a number of points raised by stakeholders in detail. This includes:

- Assessing the decrease in TMR relative to previous price controls when estimating in CPI/CPIH terms.
- Assessing the stakeholder submission that the inflation series used by the UKRN group to deflate the nominal returns is unreliable and upwardly biased.
- Assessing the adjustment from geometric to arithmetic returns and reconciling the overall estimates from the 2003, 2006 Wright et. al studies to the 2018 UKRN study.

10.42 We explore cross-checks to this analysis, including estimates used by investment consultants, long-term investors, and the dividend growth model. We find they support an estimate of TMR expectations lower than previous price controls.

10.43 We seek stakeholder feedback on this analysis, and propose as a working assumption a range of 6.25-6.75% real CPIH for TMR resulting from this analysis.

#### *Equity beta*

10.44 Equity beta is an estimate of the risk of investing in a particular company or type of companies (such as energy network companies) as compared to the risk of investing in the equity market as a whole (which by definition has an equity beta equal to 1.0).

10.45 In the RIIO-2 Framework consultation, we proposed that we would estimate forward-looking equity betas by looking at the historical correlations between the share prices of regulated utilities and a stock market index such as the FTSE All-Share index. We referred to CEPA's recommendation that the RIIO-2 equity beta should be in the range of 0.7 to 0.8.

10.46 In the Framework decision, we committed to further investigating equity beta issues, including the relationship between gearing and risk.

10.47 To address the issues raised by stakeholders, we requested Dr. Donald Robertson of the University of Cambridge to extend the work he produced for the UKRN study, and further work was conducted by Indepen Limited, a consulting firm. A detailed summary of these findings is produced in the finance annex. We publish the Dr Robertson paper and the Indepen report along with the consultation.

10.48 In summary, at this stage we are not convinced by arguments submitted to us from NERA and Oxera on behalf of network companies to alter our proposed methodology. We are also not convinced to use only raw betas as suggested by Citizens Advice. We are proposing to de-gear and re-gear betas, but continue to think carefully about this approach in line with the Indepen report.

#### *Results of proposed methodology with current data*

10.49 Our proposed approaches result in CAPM values of:

- A raw equity beta of 0.6 to 0.7, re-gear to 0.65 to 0.76, based on 60% notional RAV gearing



- Total market returns of 6.25% to 6.75% real CPIH
- Risk-free rate of -0.69% real CPIH (to be indexed, as proposed below)

10.50 These parameters imply a cost of equity range of 3.79-4.98% real CPIH.

*Step 2: CAPM cross-checks*

10.51 Our finance annex describes cross-checks to the CAPM range, including:

- Market-to-asset ratios
- Professional forecasts from investment managers and advisors
- Bids for offshore electricity transmission assets
- Infrastructure fund discount rates

10.52 We believe these cross-checks suggest general support for the CAPM-implied cost of equity described above. We propose to update this information at initial and final determination stages, based on the prevailing market conditions.

10.53 Based on current information, the cross-checks broadly support the CAPM-implied range, and therefore our current interpretation is to narrow the CAPM-implied range to 4.00% to 5.00% real CPIH.

*Step 3: Expected vs allowed returns*

10.54 The cost of equity is an expected return by definition. The UKRN Report highlighted that expected equity returns (ER) can be different from (ex ante) baseline allowed returns (AR) insofar as investors expect (ex ante) companies to benefit from other financial incentives (positive or negative). The Framework decision confirmed we would apply this distinction.

10.55 Our finance annex explores in detail how we propose to apply that distinction. At this stage, our working assumption is that, on the balance of probabilities, investor expectations will be, at the very least, marginally positive.

10.56 Based on the current evidence available to us, we propose that the impact on the allowed return is a reduction of up to 0.5% relative to the mid-point of the 4.0% to 5.0% real CPIH range. We note this is relatively small compared to historical outperformances of 2.0% to 3.0%. Any reduction in allowed return will be considered at initial and final determinations in light of the final overall RIIO-2 proposals and we note our belief that variances of 3% are less likely in RIIO-2 (see finance annex Chapter 3).

10.57 Having completed initial work on Step 1, Step 2 and Step 3 using the methodologies we propose, based on current market data, our working assumption for the cost of equity is 4.0% CPIH real.

**Table 6: Working assumption on the baseline allowed cost of equity after Steps 1, 2 & 3, for each year of GD2 and T2, in CPIH terms**

Price base	Component	Year-end 31st March					Source
		2022	2023	2024	2025	2026	
CPIH	Working assumption for the baseline allowed cost of equity after Steps 1, 2 and 3.	4.00%					Judgement based on Steps 1, 2 and 3.

Cost of equity consultation questions

**Risk-free rate questions**

FQ5. Do you agree with our proposal to index the cost of equity to the risk-free rate only (the first option presented in the March consultation)?

FQ6. Do you agree with using the 20-year real zero coupon gilt rate (Bank of England database series IUDLRZC) for the risk-free rate?

FQ7. Do you agree with using the October month average of the Bank of England database series IUDLRZC to set the risk-free rate ahead of each financial year?

FQ8. Do you agree with our proposal to derive CPIH real from RPI-linked gilts by adding an expected RPI-CPIH wedge?

**TMR questions**

FQ9. Do you have any views on our assessment of the issues stakeholders raised with us regarding outturn inflation, expected inflation, and the calculation of arithmetic uplift (from geometric returns)?

FQ10. Do you have any views on our interpretation of the UKRN Study regarding the TMR of 6-7% in CPI terms and our 6.25% to 6.75% CPIH real working assumption range based on the range of evidence?

FQ11. Do you have any views on our reconciliation of the UKRN Study to previous advice received on TMR as outlined at finance annex Appendix 2?

**Equity beta questions**

FQ12. Do you have any views on our assessment of the issues that stakeholders raised regarding beta estimation, including the consideration of: all UK outturn data, different data frequencies, long-run sample periods, advanced econometric techniques, de-gearing and re-gearing, and the focus on UK companies?

FQ13. What is your view on Dr Robertson’s report?

FQ14. What is your view on Indepen’s report?

FQ15. What is your view of the proposed Ofgem approach with respect to beta?

**Cross-checking the CAPM-implied cost of equity questions**

FQ16. Do you agree with our proposal to cross-check CAPM in this way?

FQ17. Do you agree that the cross-checks support the CAPM-implied range and lend support that the range can be narrowed to 4-5% on a CPIH basis?

FQ18. Are there other cross-checks that we should consider? If so, do you have a proposed approach?

**Expected and allowed return questions**

FQ19. Do you agree with our proposal to distinguish between allowed returns and expected returns as proposed in Step 3?

FQ20. Does finance annex Appendix 4 accurately capture the reported outperformance of price controls?

FQ21. Is there any other outperformance information that we should consider? We welcome information from stakeholders in light of any gaps or issues with the reported outperformance as per finance annex Appendix 4.

**A summary of our working assumption for the cost of capital**

10.58 Table 7 below summarises our working assumption for the cost of capital in CPIH terms. The primary purpose of this consultation is to propose an appropriate methodological process for setting cost of capital allowances at the Determination stage in 2020. However, for illustrative purposes and for company Business Plans, working assumptions are provided below, based on the application of the methodologies being consulted on, based on current market data and evidence.

**Table 7: Working assumption for the GD2 and T2 allowed capital returns in CPIH terms**

Price base	Component	Year-end 31st March					Average	Ref	Source
		2022	2023	2024	2025	2026	'22-'26		
CPIH	Allowed debt return	1.96%	1.79%	1.70%	1.64%	1.59%	1.74%	A	Working assumption. See finance annex for further information.
	Allowed equity return	4.00%					4.00%	B	Working assumption. See finance annex for further information.
	Notional gearing	60%					60.00%	C	Working assumption
	Baseline Allowed Return (WACC)	2.78%	2.67%	2.62%	2.58%	2.55%	2.64%	D	$D = A * C + B * (1 - C)$

10.59 In general, these values are provided for the purpose of Business Planning only. We intend to update this information in light of changing market conditions and stakeholder feedback, as appropriate.

**Financeability**

Introduction

10.60 Ofgem has a duty to have regard to the need to secure that licence holders are able to finance the activities which are the subject of obligations imposed by or under the relevant legislation.

- 10.61 An investment grade credit rating (see glossary) signals a strong likelihood that the licence holder will be able to meet its liabilities and keeps the cost of debt low for networks. In turn, investment grade credit ratings also keep network charges low for consumers.
- 10.62 If the cost of debt falls more slowly than the cost of equity (for instance, because of historical contracted liabilities), then the reduction to company cashflows due to a lower cost of equity may affect the ability of companies to make debt payments. In the absence of some offsetting action from the companies or Ofgem, this could impact company credit ratings.

#### Summary of RIIO-2 Framework consultation and decision

- 10.63 In the consultation, we set out three options for how financeability issues could be addressed:
- We could stop inflating the RAV (option A).
  - We could put the onus on companies to take appropriate action (option B).
  - We could introduce a cashflow floor (option C).
- 10.64 Following consultation and consideration of responses, we noted there was strong opposition to option A.
- 10.65 A key issue for stakeholders in relation to option B was establishing where the responsibility for financeability lay (between Ofgem and the licence holders).
- 10.66 Some stakeholders (such as Centrica and three network companies) were cautiously supportive of option C. They suggested there could be merit in this approach in specific and limited circumstances. Other network companies did not support the idea. National Grid, for example, argued that this approach “would move the regulatory regime away from an incentive-based approach towards a pass-through fixed return approach, at least in part”. Nearly all respondents felt that there was insufficient detail on how a cashflow floor would operate to be able to assess the option properly at this stage. They requested further clarity from Ofgem.
- 10.67 In the Framework decision, we decided to rule out option A. We noted we would carry out further work to develop option B and option C.

#### Developing the financeability assessment approach

- 10.68 In the Framework decision, we proposed to consider the financeability of notional companies in-the-round considering all price control assumptions.<sup>97</sup> As a proxy for the financeability of the actual companies, we stated that we would stress test the notional company base case.
- 10.69 We propose to continue to focus on the notional company in assessing financeability, assuming in the first instance that companies meeting their operating targets are not exposed to material risk of financial distress. We will also monitor company projections and will consider downside scenarios.
- 10.70 Despite our focus on financeability of the notional company for setting allowances, we believe it is important for companies to assess the financeability of their RIIO-2 Business Plans, on both a notional and actual capital structure basis, and would

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<sup>97</sup> Paragraph 6.64 [https://www.ofgem.gov.uk/system/files/docs/2018/07/riio-2\\_july\\_decision\\_document\\_final\\_300718.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/07/riio-2_july_decision_document_final_300718.pdf)

propose that companies include this assessment in their Business Plan submissions for Ofgem review.

10.71 At the beginning of 2019, we intend to provide more guidance to companies with regards to how they should assess financeability, including a draft financial model for RIIO-2.

10.72 We expect a financeability assessment would include a suite of financial metrics commonly used in financial markets, including those identified in our Framework consultation<sup>98</sup> and those used by rating agencies. However, we do not propose to follow any one metric used by any particular rating agency and instead propose to assess the resulting quantitative metrics and qualitative factors as a whole. We do not expect to provide targets for any particular metrics and would expect companies to assess financeability as a whole, including potential company actions.

10.73 In the event of material underperformance, we propose looking to company actions or the operation of the cashflow floor to address any associated financeability issues, rather than relying solely on headroom in base case credit metrics.

#### Onus on companies

10.74 We consider that companies can address financeability in a number of ways:

- Dividend policies can be adjusted to retain cash within the ring-fence (see glossary) during the RIIO-1 or RIIO-2 period.
- Equity injections can be used to reduce gearing.
- Expensive debt or other financial commitments could be re-financed.
- Companies can propose alternative capitalisation rates and/or depreciation rates, if appropriate.

10.1 Against a background of adequate allowed returns on a notional company basis, we consider these options can be effective in addressing any financeability concerns.

#### Cashflow floor concept

10.2 We set out in the finance annex the background to our previous consultation on the cashflow floor concept and how our work has developed on this topic.

10.3 Although we expect network companies are likely to be able to comfortably repay debt in the base case we recognise that with a lower cost of equity they may have less headroom (see glossary) to deal with downside scenarios (however unlikely these might be). Two possible ways to deal with this are increasing the headroom over the cost of debt by increasing the cost of equity for all licensees, or strengthening the ring-fence so bondholders are better protected on the downside (and therefore require less headroom on base case cashflows). The latter may thus allow us to consider a less constrained cost of equity allowance. It is with this in mind that we have continued to develop proposals for a potential cashflow floor.

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<sup>98</sup> Paragraphs 7.69 to 7.72

[https://www.ofgem.gov.uk/system/files/docs/2018/03/riio2\\_march\\_consultation\\_document\\_final\\_v1.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/03/riio2_march_consultation_document_final_v1.pdf)

- 10.4 We identify three main objectives to drive the development of a cashflow floor. These are that a cashflow floor should:
- (i) Strengthen the ringfence and support the creditworthiness of actual licensees in the current low cost of equity environment.
  - (ii) Protect consumers and bondholders from downside scenarios while leaving shareholders fully exposed to incentives on cost and quality of service.
  - (iii) Preserve incentives on licensees to manage their financial structures in a reasonable and prudent manner.
- 10.5 In our consultation, we outlined two variants of the cashflow floor: Variant 1 - Maximum Penalties, and Variant 2 - Minimum Coverage Ratios. Since the Framework decision was published we have developed an additional variant (Variant 3) of the cashflow floor which, while based on notional gearing, assesses actual company cashflow versus actual levels of company debt service (including any principal payments due and not already pre-financed). We would refer to this variant as a 'Liquidity based cashflow floor' and believe it has the following benefits:
- As it is adjusted to reflect actual company cashflow and actual company debt service, we believe it would provide stronger credit support than the other variants as it should protect against payment default.
  - It can be clearly defined and would not be exposed to any changes in rating agency ratio definitions or metrics.
  - It would have less risk of being triggered before it is required.
  - It would therefore be more likely to be considered proportional and to not place unnecessary risk on consumers.
- 10.6 We believe the inclusion of a cashflow floor has the added benefit of strengthening the ring-fence, if appropriately structured. For example, if a company ever requires financial support from the cashflow floor, we would envisage more regular reporting of liquidity positions and greater regulatory oversight.
- 10.7 In terms of benefits to consumers, we believe the inclusion of a cashflow floor would avoid arbitrarily increasing the cost of equity to address potential financeability concerns.
- 10.8 To facilitate development of a cashflow floor that meets the main objectives, we have identified the following design principles for the cashflow floor:
- It should provide support for debt payments but not equity payments.
  - It should be targeted – only applying for those companies in circumstances that require it.
  - It should be proportional – it should not place any unnecessary burden on particular consumer groups.
  - Compared to the alternatives (higher cost of equity) it should be beneficial to consumers.
  - It should allow the removal of constraints on cost of equity judgements that might otherwise apply.

- It should not offer companies an easy alternative to managing their own finances appropriately- it should be structured as a safety net and not be open to manipulation.

10.9 We are seeking views on the following draft cashflow floor process based on Variant 3:

- a) The licence condition<sup>99</sup> that compels companies to confirm they have adequate financial resources could be amended to include a requirement to provide Ofgem with quarterly liquidity forecasts for the subsequent 12-month period.
- b) These forecasts would compare Expected Cash Available before debt service ('ECA') to Debt Service Requirements ('DSR').<sup>100</sup>
- c) If any such liquidity forecast (or any voluntary liquidity forecast between test periods) identifies a shortfall, the company would, subject to a short cure period, be placed in Cashflow Supported Status ('CSS'). This would result in:
  - An increase in tariffs across the sector (gas or electricity, depending on the sector in which the company in CSS operates) by an amount equal to the identified shortfall (Cash Top Up or 'CTU'), potentially collected by the System Operator<sup>101</sup> and payment made to the CSS company for the purpose of enabling it to meet its debt service obligations.
  - Ring-fence provisions being triggered, including:
    - Dividend lockup
    - Restriction on asset disposals
    - Restriction on new liens or loans
    - Restriction on payments to related parties
  - Increased regulatory oversight, including:
    - Repayment plan to be provided to Ofgem
    - Monthly financial and operational reporting to Ofgem
    - Ofgem discretion to appoint an Ofgem representative to the board
    - Ofgem discretion to require an additional independent director to be appointed to the board
- d) Following the triggering of CSS and payment of CTU, the company would collect full charges in accordance with its normal allowances but would pay 75%<sup>102</sup> of operating surpluses to the System Operator to allow a reduction of

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<sup>99</sup> Standard Condition 44 in Gas Transporters License, Condition B7 in Electricity Transmission Standard Conditions. Links below:

[https://epr.ofgem.gov.uk//Content/Documents/Gas\\_transporter\\_SLCs\\_consolidated%20-%20Current%20Version.pdf](https://epr.ofgem.gov.uk//Content/Documents/Gas_transporter_SLCs_consolidated%20-%20Current%20Version.pdf)

<https://epr.ofgem.gov.uk//Content/Documents/Electricity%20transmission%20full%20set%20of%20consolidated%20standard%20licence%20conditions%20-%20Current%20Version.pdf>

<sup>100</sup> Greater detail provided in Finance Annex.

<sup>101</sup> For all references to System Operator in relation to cashflow floor please read System Operator for electricity sector and System Operator or Transmission Operator for gas sector.

<sup>102</sup> Percentage to be confirmed; 75% provided as an assumption at this stage. Less than 100% of operating surpluses being used to repay the CTU allows cash to build up within the ring-fence, for the benefit of all creditors.

charges to all consumers proportionately (spreading the consumer rebate across the sector) and the 'repayment' of the CTU. The CTU would:

- Escalate at WACC until repaid
  - Only be available a limited number of times
  - Need to be fully repaid for the company to exit CSS and be released from the relevant restrictions and from the additional oversight measures.
- e) If the company fails to repay 100% of the required CTU repayment after 10 years, a RAV amount equal to the CTU amount still owed would be partitioned ('CFF Partitioned RAV') and an amount equal to the WACC and depreciation associated with the CFF Partitioned RAV would be payable to the System Operator, which would use these funds to reduce charges for all consumers (in the relevant sector).

10.10 We would seek to avoid company manipulation of the use of the cashflow floor and would therefore consider the following as potential protection against this:

- That the cashflow floor would be subject to a gearing cap<sup>103</sup> (to be determined based on notional gearing levels but to include some headroom compared to each licensee's gearing levels as at 31 March 2018, adjusting downwards for any future de-gearing until gearing reaches the notional level), or
- A gearing penalty such that any CTU would escalate at WACC, if the company is within 5% of notional gearing, or at a higher rate for greater gearing levels, for example WACC plus an additional 1% for each additional 5% gearing.

10.11 On the basis that the cashflow floor would provide comfort to debt providers that additional funding will be available in the event of material underperformance, company Business Plans can be prepared on the basis of ensuring base case cashflows will be adequate to meet debt funding costs.

10.12 During consultation, views of stakeholders, including debt providers, will be considered in assessing what level of headroom is considered appropriate for base case Business Plans in light of anticipated operating cashflow stability and details of the cashflow floor.

10.13 Our comprehensive review of company financial arrangements including debt and tax (called the ring-fence review) is ongoing. We are establishing whether our findings have any implications for the prices that consumers pay for network services, and the resilience of network companies against financial failure. Any action that we take to amend or reform the ring-fence conditions for RIIO-2 will be informed by the results of our work in establishing the cashflow floor mechanism.

10.14 In terms of RIIO-1 actions, we are planning changes to the regulatory reporting process from next year. We propose that licensees should disclose more information on debt and tax, including returns to HMRC and appropriate reconciliations. We also plan to integrate greater transparency by expecting the licensees to publish their dividend policies and disclose more information on executive pay.

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<sup>103</sup> Above which the cashflow floor would no longer be available for any of the licence holder's debt



### Proposals for financeability

10.15 We do not propose to rule out either Option B (onus on companies) or Option C (cashflow floor) at this stage. We would welcome initial views from stakeholders on the draft cashflow floor mechanism outlined herein as part of this consultation.

10.16 Further work on the detail of the proposed cashflow floor mechanism will continue and it is envisaged that a more detailed mechanism will be consulted on in 2019, ahead of the timetable for final determinations in 2020. This would allow detailed consideration of the proposed cashflow floor by companies, investors, consumer groups and other stakeholders.

### Financeability consultation questions

FQ22. What is your view on our proposed approach to assessing financeability? How should Ofgem approach quantitative and qualitative aspects of the financeability assessment? In your view, what are the relevant quantitative and qualitative aspects?

FQ23. Do you agree with the possible measures companies could take for addressing financeability? Are there any additional measures we should consider?

FQ24. Do you agree with the objectives and principles set out for the design of a cashflow floor?

FQ25. Do you support our inclusion of and focus on Variant 3 of the cashflow floor as most likely to meet the main objectives?

## **Indexation of RAV and calculation of allowed return**

### Introduction

10.17 RPI is no longer seen as a credible measure of inflation<sup>104</sup>. The Office for National Statistics (ONS) has now adopted CPIH as the lead measure for household inflation. ONS prefer CPIH as a measure of consumer prices because it is more comprehensive than CPI. CPIH includes owner occupiers' housing costs and council tax, and therefore captures a major component of household spending.

### Summary of RIIO-2 Framework consultation and decision

10.18 We proposed to move away from RPI in the Framework Consultation for purposes of indexing RAV and allowed returns. In the decision we decided to move to CPIH and noted that we would, by December, decide whether a phased transition was necessary.

### Update on our further work

10.19 In the finance annex we note:

- A straight switch to CPIH would offset some of the cashflow impact of a lower allowance for the cost of equity.
- We are not convinced that a liquid bond and gilt market, in CPIH terms, is a necessary pre-requisite for moving away from RPI. We note that companies would benefit in cashflow terms, even if a proportion of actual debt is linked to RPI.

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<sup>104</sup> <https://www.statisticsauthority.gov.uk/archive/reports---correspondence/current-reviews/uk-consumer-price-statistics---a-review.pdf> Summary and recommendations

- That the proportion of debt in the sector that is linked to RPI is less than 30% and that the water sector RPI linkage was much higher, at 50%. A consultancy company, NERA, in its advice to WPD (Western Power Distribution) agreed that linkage was much higher in the water sector.
- That we are not convinced there would be a material impact on the ability for companies to hedge cashflow volatility, if allowances are based on CPIH rather than RPI.
- That we have not received convincing evidence that we should continue to use RPI for calculating RAV indexation or allowed returns. This is also supported by Citizens Advice, British Gas and the Energy Users Group, although Citizens Advice has since sought more clarity on the cost of moving to CPIH.
- That we have considered further the issue of NPV neutrality. We believe that NPV neutrality is best secured, in terms of RAV and allowed returns, by a one-off, point-in-time switch between RPI and CPIH, reflecting the expected inflation values at that time. We also note our concern that any true-up could result in continued RPI indexation indirectly.

10.20 We set out further detail on these issues within the finance annex.

#### Proposals

10.21 We propose to use CPIH from RIIO-2 onwards (1 April 2021 for GT, ET and GD) for the purposes of calculating RAV indexation and allowed returns. We do not propose to phase the move away from RPI.

#### Next steps

10.22 Our working assumption at this stage, for RIIO-2 forecasting and Business Plan purposes, is to assume that CPIH will be equivalent to the forecast for CPI. We will provide an update on this at a later stage in the process.

10.23 We aim to provide more clarity early in 2019 on how the CPIH assumption should be reflected in reporting and Business Plan templates.

#### Indexation of RAV consultation questions

FQ29. What is your view on our proposal for an immediate switch to CPIH from the beginning of RIIO-2 for the purposes of RAV indexation and calculation of allowed return?

FQ30. Is there a better way to secure NPV-neutrality in light of the difficulties we identify with a true-up?

### **Other finance issues**

#### Introduction

10.24 The Finance annex covers a number of additional topics for consultation:

- Corporation tax
- Regulatory depreciation and economic asset lives
- Capitalisation rates
- Notional gearing

- Notional equity issuance costs
- Pension scheme established deficit funding
- Directly remunerated services
- Amounts recovered from the disposal of assets

#### Summary of our proposals for corporation tax

10.25 We have reviewed the existing RIIO-1 mechanisms and are continuing to work with companies to understand the cause and scale of any variances between corporation tax allowances and corporation tax costs.

10.26 In our Framework consultation, we suggested there were three options that we might consider, in terms of implementing a new tax policy for RIIO-2, as follows:

- Option A – Notional allowance with added protections
- Option B – Pass-through for payments to HMRC
- Option C – The ‘double-lock’: the lower of notional (Option A) and actual (Option B)

10.27 At this stage, we propose to retain all three options open for further consideration, and we expect companies to provide substantial evidence that there are not material differences between allowances received under the price control compared to payments made to HMRC. The added protection we propose for Option A is for us to revisit the notional allowances, during the RIIO-2 period or at its close-out, should we find that allowances are materially greater than payments to HMRC. We propose that, wherever possible, all companies should seek to obtain the ‘Fair Tax Mark’ certification.

#### Corporation tax consultation questions

FQ26. Do you support our proposal that companies should seek to obtain the “Fair Tax Mark” certification?

FQ27. Is there another method to secure tax legitimacy other than the “Fair Tax Mark” certification? Could we build upon the Finance Acts (2016 and 2009) with regards to the requirement for companies to publish a tax strategy and appoint a Senior Accounting Officer?

FQ28. For Option A, how should a tax re-opener mechanism be triggered? Is there a materiality threshold that we should use when considering the difference between allowances and taxes actually paid to HMRC? If so – what might this be?

#### Summary of our proposals for regulatory depreciation and economic asset lives

10.28 Our existing policy is to depreciate the RAV at a rate that broadly approximates to the useful economic life of the network assets.

10.29 For depreciating new additions to the RAV, the exact approach differs by sector. For example, ED is currently transitioning from a 20-year straight-line asset life (as at 31 March 2015) to a 45-year straight-line asset life (by 31 March 2023).

10.30 The assumed asset life for ET is also increasing (from just above a 20-year life) although the degree of this increase varies by licensee. NGET and SPTL will depreciate new RAV additions using a 45-year straight-line asset life from 2021

onwards, while the transition for SHE-T is over two price control periods (32.5-years from 2021 onwards to 45-years straight-line asset life by the end of RIIO-2).

- 10.31 During RIIO-1, there has been a slower rate of depreciation for NGGT compared to the other sectors - new additions to the RAV are depreciated on a straight-line basis over a 45-year asset life. In GD new RAV additions are also being depreciated at 45 years, although a 'sum-of-the-digits' assumption means that more of the asset is depreciated in the earlier years.
- 10.32 We are open to exploring changes to the depreciation methodology in line with the economic principle of intergenerational fairness.
- 10.33 We would welcome views from respondents on sector-specific arguments relating to the useful economic lives of their assets.

#### Regulatory depreciation consultation questions

FQ31. Do you have any specific views or evidence relating to useful economic lives of network assets that may impact the assessment of appropriate depreciation rates?

#### Our proposals for capitalisation rates

- 10.34 Capitalisation rate refers to the level of company expenditure paid for by consumers over time, rather than immediately.
- 10.35 As stated in the July Framework Decision, we intend to review our assumptions for the fast/slow money split in light of operational practice to date and the information in company Business Plans. In addition, we will consider the impact of the implementation of IFRS16, which effectively brings all leased assets on to company balance sheets, following submission of company Business Plans.

#### Capitalisation rates question

FQ32. Do you agree with our proposed approach to consider capitalisation rates following receipt of company Business Plans?

#### Summary of our proposals for notional gearing

- 10.36 Notional gearing represents the assumed percentage of net debt to RAV for the notional company. This in turn impacts the percentages of RAV that attract debt and equity allowances.
- 10.37 Notional gearing was set at 62.5% for gas transmission, 55-60% for electricity transmission and 65% for gas distribution during RIIO-1.
- 10.38 We expect network companies to assess the overall risk of their Business Plans and make realistic and well-justified proposals for notional gearing.
- 10.39 We will continue to review notional gearing in light of the riskiness of the overall price control settlement and the ability of the notional efficient company to sustain downsides. We are currently assuming, as a working assumption in advance of receiving Business Plans, a notional gearing value of 60% for both GD2 and T2.

Notional gearing consultation question

FQ33. Do you have any comments on the working assumption for notional gearing of 60%, or on the underlying issues we identify above?

Summary of our proposed position on notional equity issuance costs

10.40 Notional equity issuance costs are transaction costs associated with notional equity issuance during a price control period. The RIIO-1 assumption is an allowance of 5% of the value of any notional equity raised.

10.41 We have reviewed the equity RIIO-1 mechanism further. We find that the volume of equity issuance, and therefore the allowances for costs, are lower in RIIO-1 than we expected at final determinations and that there are differences between modelled and actual volume of equity issuance.

10.42 We propose to consider further the equity issuance cost assumption in light of RIIO-2 Business Plans and notional gearing. After receiving this further information, we will consider whether the issuance cost should be lower than the 5% assumed in RIIO-1 and whether the overall modelled volume of equity issuance is reliable, compared to actual company equity issuances.

Notional equity issuance consultation question

FQ34. Do you agree with our proposed approach to consider notional equity issuance costs in light of RIIO-2 Business Plans and notional gearing?

Summary of our proposed position on pension scheme established deficit funding

10.43 We have a long-standing commitment to consumer funding of deficits in defined benefit pension schemes, which were generally in existence before the energy network sector was privatised. To reflect this commitment, our price controls provide a form of pass-through funding by consumers of 'Pension Scheme Established Deficits' (those attributable to service before certain specified cut-off dates).

10.44 We updated our policy on this in April 2017.<sup>105</sup>

10.45 We review the allowed revenue the network companies can recover on a triennial basis - the last review was completed in November 2017. The next triennial review will complete in November 2020 and will set the established deficit pension allowance from 1 April 2021. This review will sit outside the RIIO-2 price control review.

10.46 For RIIO-2, we propose:

- That pension scheme administration (Admin) and pension protection fund levy (PPF) costs form part of totex.
- For Business Plans, we expect network companies to assume the pension allowances for RIIO-2 will be equal to the allowance for 2020-21 as set out in our November 2017 decision (adjusted to remove Admin and PPF).

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<sup>105</sup> [Decision on Ofgem's policy for funding Pension Scheme Established Deficits](#)

### Pension funding consultation questions

FQ35. Do you agree that for RIIO-2 we align transmission and gas distribution with electricity distribution and treat Admin and PPF costs as part of totex?

### Summary of our proposed position on Directly Remunerated Services

10.47 Directly Remunerated Services<sup>106</sup> (DRS) are specific activities of the network companies, that are settled outside of the normal regulatory price control. Companies are allowed to charge their customers directly for certain services performed. These services are "directly remunerated" by the customer rather than through Ordinary Transportation Charges.

10.48 The policy intent across sectors is to avoid consumers paying for a service that the network companies have already been remunerated for.

10.49 For RIIO-2, we propose to clarify the treatment of revenues and costs for each category and to harmonise the categories across sectors.

### DRS consultation questions

FQ36. Do you have any views on the categories of Directly Remunerated Services and their proposed treatment for RIIO-2?

### Summary of our proposed position on amounts recovered from the disposal of assets

10.50 Where network assets are no longer required, network operators may dispose of or relinquish operational control, subject to consent. They may also recover from third parties, any costs in respect of damage to their network. Some of these transactions can include the disposal of land.

10.51 We will consider whether it is in the consumer interest to ensure there are incentives on the financial proceeds from disposals together and, if so, how the fair value is established and how the incentive is set.

10.52 We propose the licensees include a strategy as part of their Business Plans on how they treat the disposal of assets. As part of their submission, they should demonstrate how consumers would benefit from that strategy.

### Consultation questions on amounts recovered from the disposal of assets

FQ37. Do you have any views on the potential treatment of financial proceeds or fair value transfers of asset (including land) disposals for RIIO-2?

## **Ensuring fair returns**

10.53 Network company returns in RIIO-1 have been higher than expected. This is due to systematic outperformance of the price control across three of the four sectors.<sup>107</sup>

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<sup>106</sup> In RIIO-T1 known as "Excluded Services" under Special Condition 8B (Services treated as Excluded Services) and Special Condition 11C (Services treated as Excluded Services) and in RIIO-GD1, under Special Condition 4C (Services treated as Excluded Services).

<sup>107</sup> By the means of totex underspending allowances and beating output incentive targets.

10.54 In some cases, the outperformance reflects genuine innovation and efficiency, which improves services and reduces costs for consumers. In many others, however, it has been the result of forecasting errors, windfall gains, or overgenerous allowances or targets.

10.55 These factors could equally apply in the opposite direction, leading to companies earning much lower returns than were anticipated at the outset of the price control. In either event, these outcomes give rise to concerns over the perceived fairness of the price control.

### **Summary of Framework Decision**

10.56 In the RIIO-2 Framework decision, we indicated that we intend to introduce return adjustment mechanisms (RAMs) to mitigate the future risk of companies earning materially higher or lower-than-expected returns in a changing system. We maintained RAMs would help ensure that companies' returns better align with the level of risk they are exposed to. Our intention is that RAMs will be symmetrical and offer downside protection to investors as well as protecting consumers from higher returns.

10.57 All of the RAMs options we have identified are intended to act as 'failsafe mechanisms'. We do not anticipate them being employed if the price control operates as expected within a relatively generous margin of error.

### **Our proposed approach for RIIO-2**

10.58 We intend to use RAMs to help ensure the perceived fairness of RIIO-2 by protecting consumers and investors against ex post overall returns from network price controls deviating greatly from ex ante expectations.

10.59 We will seek to protect against very high or low returns while as far as possible not undermining incentives on companies to (a) improve service or (b) cut costs for consumers. We will seek to ensure that RAMs do not compromise a company's ability to finance the activities which are the subject of their statutory and licence obligations.

10.60 Due to the different nature of the ESO price control, the arrangements discussed here will not apply in that sector.

### **Options for RAMS and our assessment**

10.61 The options we are currently considering have been refined since the Framework decision. This reflects the fact that the second option from the Framework decision ('Constraining totex and output incentives') could be applied both separately and in addition to the other mechanisms. Also, sculpting based on totex rather than RoRE is merely about the measurement approach we could apply to sculpting rather than a distinct option. Therefore, we do not assess this as a distinct option.

10.62 The RAMs options we are currently considering can be divided into two broad categories:

- Discretionary adjustments – a decision on whether to apply an adjustment, and the extent of any adjustment, would be based on a review of return levels after predetermined thresholds are breached.
- Mechanistic adjustments – these would establish predictable ex ante rules for when an adjustment would apply and automate the process of applying adjustments to individual companies.

10.63 There is a spectrum of mechanistic approaches we could use. These range from adjustments that are company-specific (Class 1) to adjustments that link the level of adjustment for individual companies to how the sector is performing on average (Class 2).

**Table 8: Spectrum of mechanistic return adjustment approaches**

Class 1	Class 2	
Sculpted sharing	Sector average sculpting	Anchoring
Applying a higher adjustment to individual companies' performance the further away that performance deviates from predetermined thresholds (could be applied by either using a RoRE or a totex metric).	Adjusting out or underperforming companies based on the sector average. This is done by setting sculpting levels for companies performing above or below a predetermined threshold but the level of sculpting is linked to different sector average returns. As sector average returns increase or reduce, so too does the level of sculpting for out or underperforming companies. We provide more information on this option in the appendix.	Adjusting companies' performance when the sector average exceeds a predetermined threshold, so that the adjustment returns the sector average back to the threshold. Our proposed approach for anchoring would apply 'proportionate adjustments' to companies in a sector, that with no adjustments would send a company's return below its allowed return on equity.

10.64 Table 18 in Appendix 4 provides more detail on all of the options we are considering, including sector average sculpting, and also a more detailed assessment of each option.

### Ensuring fair returns questions

We welcome stakeholder views on our approach to ensuring fair returns in RIIO-2, including:

CSQ81. Do you agree with our comparative assessment of RAMs set out in Table 18 in Appendix 4?

10.65 We are not proposing to apply discretionary adjustments in any sector as we believe this is the least effective option available to us. We consider the potential use of a discretionary adjustment (and the scale of the resulting adjustment) could create uncertainty for investors and company decision-making processes. In addition, the process of distinguishing between genuine and non-genuine outperformance that may be required as part of deciding on the adjustment, may be cumbersome and not justify the administrative burden it may entail. Therefore, we consider simpler, more automatic mechanisms are more appropriate for a five-year control period.

10.66 We have therefore not included discretionary adjustments in our comparative assessment in the appendix.

CSQ82. Do you agree with our proposal not to give further consideration to using discretionary adjustments?



Proposed approach in Electricity Transmission (ET) and in Gas Transmission (GT)

- 10.67 The crucial difference between the remaining options is that a Class 1 adjustment approach ('sculpted sharing') is based solely on how an individual company performs relative to ex ante expectations, whereas the different types of Class 2 adjustments link any return adjustments to the performance of the sector as a whole relative to ex ante expectations.
- 10.68 We note that GT is a single-company sector and in ET, the Regulated Asset Value (RAV) for National Grid Electricity Transmission plc (NGET) is equal to roughly three quarters of the sector's combined RAV. These conditions would make it difficult to apply adjustments that link individual companies' returns to the average performance of the sector, because the sector average could be heavily distorted by the performance of an individual company.
- 10.69 We therefore propose to use a Class 1 approach of sculpted sharing of individual company outperformance for the GT and ET sectors.

CSQ83. Do you agree with our proposal to introduce an individual performance-based adjustment approach (Class 1) for the transmission sectors?

Proposed approach in Gas Distribution (GD)

- 10.70 In the GD sector, there is a more diverse ownership of RAV in comparison to the transmission sectors. Therefore, a Class 2 approach that links adjustments for individual companies to the sector average is a more viable and appropriate proposition.
- 10.71 Our assessment in appendix 4 suggests that a Class 2 approach may be preferable to a Class 1 mechanism where there is reasonable diversity of company ownership within a sector. The Class 1 (sculpted sharing) approach operates at the individual company level, and could have the effect of blunting incentives to seek out further improvements as a company's return approaches the threshold for adjustment (through an increase in the amount returned to consumers). This is particularly of concern when the perceived fairness issues regarding returns in the gas distribution sector arise from "systematic" outperformance, ie the tendency for even the average company to dramatically outperform the ex ante expectations set for the sector.
- 10.72 We believe a Class 2 approach would keep incentives to innovate and outperform sharp and effective. If a company is outperforming its peers but the sector as a whole is not significantly outperforming, then there would be no adjustments for any company. However, if the sector average has outperformed the threshold by a wide margin, then money would be returned to consumers based on pre-set rules.
- 10.73 We note that a Class 2 approach would introduce an additional bar for return adjustments over and above the performance of the individual company. We think this is appropriate, as high outperformance or underperformance by an individual company does not necessarily indicate that the price control allowances and targets were set at the wrong levels. However, if the average company in the sector is outperforming or underperforming by a wide margin, then that is a much stronger indication of mis-calibration of parameters in the price control.
- 10.74 We therefore do not propose to apply a Class 1 approach in the GD sector.

- 10.75 The different Class 2 models we have identified can be organised along a continuum of possibilities. At one end, we could modify the sculpted sharing approach by varying the sculpting factors based on sector average performance (both on the upside and the downside). We call this sector average sculpting. At the other end, we could place an overall limit on how far the average company (sector average) can out or underperform the ex ante price control, and beyond this limit, individual companies would share excess earnings or losses with consumers in proportion to their degree of out or underperformance, to return the sector to the limit. We call this anchoring.
- 10.76 Sector average sculpting ties the level of adjustment for individual companies to how the sector has performed on average, but does not place a cap on sector-wide out or underperformance. This may support incentives on all companies to innovate and seek out efficiencies. However, it may not be as effective at addressing concerns on the fairness of the regime and maintaining incentives on performance.
- 10.77 The design and operation of sector average sculpting is, however, more complex than anchoring, as it requires the specification of predetermined sculpting rates linked to different sector averages.
- 10.78 On balance, therefore, our initial assessment indicates that proportional anchoring may be the simplest and most appropriate approach to protecting consumers and investors from extreme outcomes in the GD sector. We seek views on our assessment.
- 10.79 We note concerns that have been raised, that anchoring could have disproportionate impact on individual companies that are not performing significantly above their allowed return in a sector that is significantly outperforming expectations. In our design of proportional anchoring, we might consider the following options to deal directly with this concern. We invite views on the potential impact of these:
- only adjusting downward those companies that are outperforming the sector average upper threshold **or** only adjusting companies upwards if they perform below the sector average lower threshold. This option would increase the similarity between anchoring and sector average sculpting; and/or
  - not adjusting any company downward below its base cost of equity **or** not adjusting companies upwards if they perform above their base cost of equity? (preferred approach).

CSQ84. Do you agree with our proposal to introduce a sector average-based adjustment approach (Class 2) for the GD sector?

CSQ85. Do you agree with our proposal we should not adjust companies downward if they perform below their base cost of equity or upwards if they perform above their base cost of equity?

#### When the adjustment should apply

- 10.80 We propose adjustment boundaries that would allow scope for companies to out or underperform their allowed return on equity. However, we consider that an average company in a regulated sector should not perform significantly better than an average company operating in the wider market. By its nature, regulation

reduces the exposure of companies to some of the risks that others face (see Chapter XX on the risk-return balance).

- 10.81 We are consulting on an adjustment collar of  $\pm 300$ bps around the allowed return on equity for the average company in a sector. This broadly equates to the difference between our current proposals for the allowed return on equity and the Total Market Return (TMR), plus a certain margin of error.
- 10.82 A  $\pm 300$ bps collar of this nature would not be easily triggered under our current RIIO-2 proposals. In particular, our proposed approach for setting sharing factors and output targets is likely to reduce the potential for the average company to earn significant additional returns from outperforming totex allowances or output targets.
- 10.83 Individual companies may well earn returns above this point and therefore where we are proposing to apply sculpted sharing (GT and ET), there is a higher likelihood that the returns for at least some companies may be adjusted. Where the mechanism would only be triggered by the sector average exceeding the threshold, then there would need to be significantly higher outperformance across all companies than we have seen in RIIO-1, considering the lower range of totex sharing factors we currently propose and potential introduction of competed incentives.
- 10.84 Using data from RIIO-1 on incentive outperformance, combined with our proposal of a lower range of totex incentive rates, we believe that it is unlikely that the adjustment threshold would be breached in RIIO-2.

CSQ86. Would a return adjustment threshold of  $\pm 300$ bps RoRE achieve a good balance between providing scope for companies to outperform and ensuring return levels are fair?

#### What is included in the scope of the proposed RAMs

- 10.85 In defining 'out or underperformance' for the purpose of triggering the proposed RAMs, we have considered two options:
- 10.86 Performance against regulatory incentives (narrow definition): this would consider only out or underperformance with respect to those aspects of the price control where we apply incentives. This would include spending against totex allowances and performance against financially-incentivised output delivery.
- 10.87 Total returns (wide definition): this would include regulatory out or underperformance and financial out or underperformance. By including financial performance (in addition to performance against incentives), this would also capture the impact of additional returns/losses generated by performance against externally-indexed debt and tax allowances.
- 10.88 The main reason we are proposing to introduce RAMs is to safeguard both consumers and investors from costs that may arise due to errors and the uncertainty at the time of setting the price control. We do this primarily by seeking to protect consumers from companies earning higher-than-expected returns, or companies earning returns substantially lower than their base cost of equity. We believe that for these asset-rich organisations, the return that investors earn on their regulatory equity (RoRE) would be an appropriate metric

as it is directly linked to Regulatory Asset Value (RAV).<sup>108</sup> We therefore propose to use a wider definition of outperformance for the GT, ET and GD sectors.

10.89 We also propose to exclude the Business Plan incentive from the scope of 'regulatory out or underperformance'. This is in order not to conflate the immediate benefit we might gain from information revealed in the Business Plan, with outperformance in the period against targets and budgets. We also note that our proposal for the Business Plan incentive reward already has a competed element within it and is therefore less likely to contribute to sector-wide outperformance.

CSQ87. What are your views on the proposed use of RoRE as a return adjustment metric? Would it be suitable for the gas and electricity transmission sectors and the gas distribution sector?

CSQ88. Should we include financial performance within the scope of return adjustments? If not, what is the rationale for excluding financial performance?

#### How should we implement the proposed RAMs?

10.90 We consider that RAMs should look at returns earned over the five-year control period as a whole, rather than at performance during individual years within the price control period.

10.91 In terms of when revenue adjustments<sup>109</sup> may take place, we are considering two options:

- At the end of the price control period – adjustments could be done as part of the close-out process. The timing of this type of adjustment at the end of the price control would benefit from being more accurate as it would be based on the entirety of information available. On the other hand, it could mean that companies may face a higher single adjustment at the end of the period.
- As part of the annual iteration process – adjustments could be 'trued-up' annually reflecting actual and forecasted performance. While the timing of this type of adjustment could reduce bill volatility, its calculation could be challenging, especially when considering that some output targets are set for the entire price control period and not annually.

10.92 We note that the total adjustment at the end of the five-year period should be the same under both approaches. However, the timing of revenue adjustments may differ.

10.93 Our preference would be to implement any adjustments (if applicable) as part of the close-out process at the end of the price controls. We consider this would be simpler and less likely to lead to inaccuracies based on partial information.

CSQ89. Should we implement adjustments through a 'true-up' as part of the annual iteration process or at the end of the price control as part of the close-out process?

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<sup>108</sup> Regulatory equity is RAV multiplied by notional gearing minus 1 and is therefore directly linked to RAV.

<sup>109</sup> Adjustment could be either downward or upward, depending on the sector/individual company performance against the proposed upper or lower 300bps threshold.

## 11. Achieving a reasonable balance in RIIO-2

**In this chapter, we outline the different considerations we have made when developing this suite of proposals for RIIO-2.**

We provide an overview of some of the key proposals outlined in this consultation and the different balances we are trying to strike.

**Consultation questions:** We seek your views on these considerations and on whether we have struck an appropriate balance. We ask specific questions on our proposals to balance risk and returns, accuracy and simplicity, and efficiency and fairness. In your response, please provide evidence and, where relevant, any alternative proposals. A full list of questions is available at Appendix 6.

### Introduction

- 11.1 A price control is complex. It involves a large number of moving parts, each designed to perform a particular function. In developing the sector methodologies, our intention is to combine each of these elements in a way that allows us to set a price control for RIIO-2 that will deliver for consumers the network services they require at a fair cost. To achieve this, we need to make trade-offs between different outcomes that may be individually desirable.
- 11.2 In our proposals we think that we are striking a reasonable balance in terms of these trade-offs, given all the information available, including through stakeholder engagement, and our policy analysis conducted to date.
- 11.3 In this document and in the accompanying annexes for each sector, we provide detail on each of our proposals and we are keen to get stakeholder views on these. However, we also want your thoughts on the overall balance that we propose to strike between these trade-offs. As part of our considerations we:
  - want to ensure the return that companies should be able to earn is commensurate with the riskiness of the environment in which they operate.
  - want to set an accurate price control, where the revenues companies earn reflect their efficient costs, balanced against a desire to keep the price control as simple as possible.
  - need to balance our intention to set efficient cost allowances that keep prices to consumers as low as possible, against the need to ensure that the networks meet the requirements of different consumer interests.
- 11.4 We expand on these issues below and how our proposals have been informed by this balance of considerations.

### Achieving a reasonable balance between accuracy and simplicity

- 11.5 In our RIIO-2 proposals, we have tried to strike a balance between accuracy and simplicity by removing certain complex aspects of the price control. We have already decided to shorten the price control to five years, we are not retaining a reward of early settlement for a high quality Business Plan, and we are proposing to remove other elements where we think doing so is appropriate. These include the Information Quality Incentive, the Innovation Roll-Out Mechanism and a raft

of individual output measures. We also propose to avoid introducing further complexity in other areas (e.g. no cost of debt sharing).

- 11.6 There remains scope to simplify the framework further by removing other components, or not introducing some of the components we have proposed. This may result in a 'simpler' price control, but potentially one that may be less accurate. In a period of change, there is a real risk that what we assume will be required at the outset of a price control differs significantly to what is actually needed. This could result in companies having insufficient revenues for the investment they need to undertake. Due to the companies' information advantages however, we believe there is a greater likelihood that inaccuracy in the price control will result in higher revenues than are necessary.
- 11.7 A price control that can adapt to changes will be more accurate, but may also require greater complexity. We think that a less accurate price control would not be in the interests of investors or consumers.
- 11.8 We illustrate this by describing below what we see as being potential consequences of removing elements of the proposed framework for RIIO-2. We recognise that in each example there may be other ways that we have not identified in this consultation that achieve a better balance between simplicity and accuracy. In your response – both to this chapter and to our specific proposals – we would welcome your views on any potential alternative approaches.

#### Fewer uncertainty mechanisms, including indexation

- 11.9 This would result in cost allowances and output targets based solely on projections made at the time of setting the price control. If these projections are proved wrong this could result in companies not being able to deliver the network services required to keep pace with demand, or being overfunded with no means to return excess revenues to consumers.
- 11.10 This would mean that if unanticipated events occur that lead to companies earning much higher, or lower, returns there may be not be an automatic way of adjusting revenues. These events have arisen in previous price controls.

#### No cashflow floor

- 11.11 As discussed earlier in this document and in the finance annex, we have not ruled out leaving the onus on companies to address any financeability concerns associated with a possible lower cost of equity allowance and reduced headroom for debt. However, we believe the potential ability to be less constrained in setting the cost of equity has significant benefits for consumers and that this warrants further consultation and work on the cashflow floor concept.

#### No price control deliverables

- 11.12 This would require funding being provided upfront for all likely projects, other than those subject to reopener mechanisms. If these projects then subsequently prove not to be required, we would have no power to recover revenues for consumers absent an appropriate clawback mechanism.

#### No dynamic targets

- 11.13 This would require targets to be set and fixed prior to the start of RIIO-2 for all outputs. If companies in a sector, on average, exceed these targets, then consumers would be paying extra to reward companies for a level of service that may have been easier to achieve than anticipated.

No network resilience measure

11.14 This would mean that companies' profits in the current period would be based on their ability to reduce costs while delivering performance that is measurable in the current period. In this environment, a company may choose to reduce costs by not maintaining or investing to secure the long-term health of their assets. This could have a significant impact on the costs for future generations and on the future reliability of the network.

No innovation stimulus

11.15 This may mean that companies avoid costs associated with research and development into new infrastructure and processes, despite these having the potential to benefit consumers over a longer-term period.

No return adjustment mechanisms (RAMs)

11.16 This would mean that if unanticipated events occur that lead to companies earning much higher, or lower, returns then there may be no mechanism of adjusting revenues within the period. These events have arisen in previous price controls – including in RIIO-1 notwithstanding a narrowly defined mid period review process which for example enabled targeted clawback in respect of outputs no longer required. The absence of RAMs could increase the risk to investors of very low returns due to factors outside of companies' controls, and the risk to consumers of very high returns due to errors and information asymmetry in the price control.

No competition

11.17 This may mean that the only basis that we have to judge the efficiency, quality and willingness to innovate of the network companies, is the performance of the companies' themselves. We think competition allows us to use markets to establish the best ideas and the optimal price of delivery.

No Business Plan incentive and a standard fixed sharing factor

11.18 This may mean that companies have no incentive to provide us with good quality information to set the price control. Knowing that they will be incentivised to beat cost allowances and output targets, companies may instead attempt to use their Business Plan as an opportunity to obtain more generous allowances and targets that are easier to beat. They may seek to do this by obscuring our ability to compare future performance with the past.

**RIIO-2 Achieving a reasonable balance questions**

We welcome stakeholder views on our RIIO-2 proposals on achieving a reasonable balance, including

CSQ90. Do you agree with our assessment of the measures we have identified to make the price control more accurate?

CSQ91. Are there other measures we should take to improve the accuracy of the price control?

CSQ92. Are there other steps we could take to simplify the price controls, without significantly affecting the accuracy of the control?

## Risk vs return

- 11.19 We believe that the allowed return on equity that we propose for RIIO-2 should reflect the level of risk facing an investor in these companies.
- 11.20 Networks are relatively low-risk businesses because they are monopolies subject to price control with a high degree of certainty on their future revenues. This protects them from *demand risk*. Networks do, however, face a degree of *delivery risk* if they overspend their allowances, or fail to meet service targets.
- 11.21 In setting RIIO-2, we are taking steps to reduce the risks that these companies face. We are proposing to provide explicit protection for changes in *inflation*, through a greater use of indexation. This would apply to *input prices* (Real Price Effects), *risk-free rates* (equity and debt indexation), and *credit market risk premia* (debt indexation).
- 11.22 Our proposed approach to setting the *totex sharing factor* will mitigate the risk to companies of cost overruns associated with new types of expenditure, where there is little historical information on which to base cost projections. More generally, we expect that totex sharing factors in RIIO-2 will be lower than in RIIO-1, and therefore consumers will pay a greater share of any higher costs than expected, while also benefiting more from underspends.
- 11.23 We are also proposing to protect networks from risks beyond their control through a framework of uncertainty mechanisms and income adjusting events. These allow revenues to be revised in light of actual demands, rather than those forecast during the setting of the price control.
- 11.24 The return adjustment mechanisms we have proposed are symmetrical. These would protect investors against extreme downside outcomes, in the same way that they would protect consumers from very high returns.
- 11.25 Networks also face *risks of network assets being stranded*, but (a) we consider our proposed policy of depreciating RAVs over the economic life of network assets substantially reduces standing risks; and (b) charging reform that introduces a fixed charge for being connected to the grid should also materially lower any stranding risks over the longer-term. Through the use of probabilistic cost benefit analysis, we expect companies to consider fully the longer-run risks of stranding associated with new investments.
- 11.26 Finally, investors in networks do face some measure of default or insolvency risk, but this is mitigated by the credit rating requirement in licences (which ensures networks have access to deep capital markets). We are consulting on the potential to further mitigate this risk through considering the introduction of a cashflow floor.
- 11.27 On the basis of the above, we believe the allowed return indicated by our proposed methodology is consistent with the risks networks are exposed to. We consider the following two strands of reasoning support this.
- a) The first is based on our formal model of investor expectations, called the Capital Asset Pricing Model (CAPM, step 1 in setting allowed equity returns described in Chapter 10). The CAPM uses a parameter called beta to measure the relative riskiness of network equity (relative to the average firm on the stock market).



- As a result of our assessment of risks above, in the round, we expect networks to be low beta assets (consistent with an exposure to risk that is considerably lower than that facing the average stock market firm). We expect network companies over time to generate lower, but more stable returns for investors compared to the average firm on the stock market. This is broadly corroborated by our econometric estimation of beta using market prices of quoted utilities, leading us to consider a beta estimate of 0.65 to 0.76 (based on 60% notional gearing) to be well-justified. This gives us confidence that the cost of equity derived from the CAPM is consistent with the risks likely to be borne by network companies in RIIO-2.
- b) The second line of reasoning is based on real-world cross-checks on returns being bid or expected by investors for similar assets. As set out in Chapter 10 and the Finance annex, we propose to cross-check the cost of equity implied by our CAPM estimation with evidence of actual investor return expectations (referred to as step 2). This would ensure that our cost of equity estimates hold for investors in practice as well as theoretically. If, at the time we propose initial and final determinations, evidence suggests changes to investor expectations assessing herein, this would be taken into account.

CSQ93. Do you agree with our consideration of the risks facing these companies? Do you think the measures we are proposing will mitigate these risks? Does the expected level of return indicated by our proposals reflect these risks?

### **Return adjustment mechanisms as a failsafe vs business as usual**

- 11.28 We are proposing to introduce return adjustment mechanisms (RAMs) and we explain elsewhere in this document our reasons for this. These could be tightly calibrated to actual performance and operate as a business as usual function, impacting on every company in a sector on a continuous basis. An alternative is that they could be a failsafe that is seldom if ever used.
- 11.29 We have purposely proposed a design for RAMs with a generous level of headroom between the allowed return and the point when these mechanisms might be triggered. As a result, we view them as a failsafe and only expect them to be used in exceptional circumstances.
- 11.30 This expectation is related to the level of accuracy with which we intend to set the price control. The measures we are proposing to introduce to improve the accuracy of the regime should mean that factors outside of the companies' control are less likely to lead to extremely high or low returns.
- 11.31 An alternative, in the context of an ex ante, incentive-based price control, would involve simplifying the controls by removing many of the components that allow us to make them more accurate. If we were to do this, then it is much more likely that RAMs would be used as a business as usual measure to correct for inaccuracies in the forecasting assumptions, that would perhaps inevitably arise.
- 11.32 Also, the expected-allowed return wedge and RAMs are two components that are trying to deal with the same underlying issue: our expectation of the probability of systemic outperformance inherent to these types of price control. The expected-allowed return wedge factors into the price control at the outset (ex ante) an

expectation of a level of outperformance; RAMs are mechanisms that seek to correct for higher-than-expected returns that subsequently arise (ex post).

11.33 Instead of having two mechanisms (one ex ante and one ex post), it is possible to simplify this to just one ex post mechanism that anchors the sector to the allowed return (ie without any buffer). This would mean, for instance, that anchoring would be applied to companies on a business as usual basis. This could increase uncertainty for investors and run the risk of destroying the good incentive properties of the framework.

- Until we have greater experience of these mechanisms, we consider it more prudent to make a modest adjustment ex ante for any expected average out/underperformance (taking the incentives in the round), and use the RAMs only in extreme situations.

CSQ94. Have we achieved a reasonable balance with our proposals in seeking to achieve an accurate price control with return adjustment mechanisms only being used as a failsafe? Should we instead have a simpler price control and put more reliance on return adjustment mechanisms?

CSQ95. Have we achieved a reasonable balance in our proposals in considering return adjustment mechanisms alongside the expected-allowed return wedge? Should we instead only rely on one mechanism? What additional value would this bring?

## Efficiency vs fairness

11.34 Our primary objective is to protect the interests of existing and future consumers.

11.35 At times, this may involve imposing higher costs on all existing consumers to benefit a select group of consumers, such as those in vulnerable situations. While one of our regulatory stances remains to avoid significant cross-subsidy, we do believe it is appropriate to fund targeted company action to support consumers in vulnerable situations in the interests of fairness.

11.36 Similarly, we may have to consider imposing higher costs on existing consumers for the benefit of future consumers, such as when we approve cases for anticipatory investment, provide allowances for innovation spending or when we use CPIH rather than RPI to index the regulated asset values. In the first two cases, we propose to apply strict tests to ensure that the expected long-term benefits to future consumers are likely to outweigh the potential costs (to existing and future consumers). In the third case, our principle of using a more accurate measure of consumer inflation to index the regulated asset base ensures greater inter-generational fairness between existing and future consumers.

11.37 We believe our proposals are consistent with these positions, but we are keen to hear stakeholder views on these matters.

### Efficiency vs fairness questions

CSQ96. Have we got the right focus on the areas that are of most value to consumers?

CSQ97. Are we proposing a methodology that allows us to achieve a reasonable balance between the interests of different consumer groups, including

between the generality of consumer and those groups that are poorly served/most vulnerable? Are we missing any group?

CSQ98. Are we proposing a methodology that allows us to achieve a reasonable balance between the interests of existing and future consumers?

## 12. Next steps

### Electricity transmission, gas transmission, gas distribution and electricity system operator

12.1 We will make our decision on the methodologies that we will use to set sector specific price controls during in May 2019. These will be the basis for the individual price controls for electricity transmission, gas transmission, gas distribution, and the electricity system operator.

**Table 9: High-level milestones for developing price controls for electricity transmission, gas transmission, gas distribution and electricity system operator**

Indicative high-level milestones for ET, GT, GD and ESO	
March 2018	RIIO-2 Framework consultation
April 2018	RIIO-2 enhanced engagement guidance
July 2018	RIIO-2 Framework decision
December 2018	Sector specific methodology consultation
May 2019	Sector specific methodology decision
July 2019	1 <sup>st</sup> draft Business Plan provided to RIIO-2 Consumer Challenge Group and Company User Groups/Consumer Engagement Groups
October 2019	2 <sup>nd</sup> draft Business Plan provided to RIIO-2 Consumer Challenge Group and Company User Groups/Consumer Engagement Groups
December 2019	Companies' Business Plan formal submission to Ofgem & RIIO-2 Consumer Challenge Group and Company User Group/Consumer Engagement reports on Business Plan to Ofgem)
Q1/2 2020	Open hearings
Q2 2020	Draft determination
November 2020	Final determination
December 2020	Statutory Licence consultation
February 2021	Licence decision
1 April 2021	Start of RIIO-2 price control for ET,GT,GD and ESO

12.2 In addition to these high-level milestones, we will also issue a consultation on Business Plan data templates in March 2019 and on our approach to cost assessment in Summer 2019.

### Electricity distribution

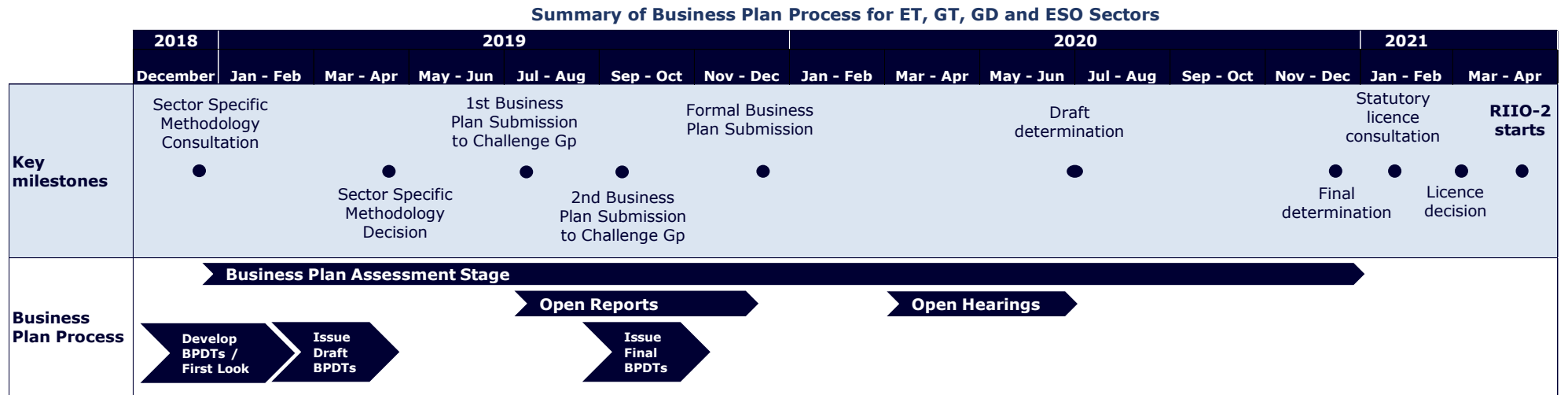
12.3 Our RIIO-2 price control for electricity distribution companies will come into effect following the conclusion of that sector's current price control (RIIO-ED1) in 2023. Our suggested forward workplan for RIIO-ED2 is below in Table 10.

**Table 10: Indicative high-level milestones for electricity distribution price control**

Indicative high-level milestones for ED	
Q3 2019	ED Open Letter
Q1/Q2 2020	ED Sector specific methodology consultation
Q3/Q4 2020	ED Sector specific methodology decision
TBC	Business Plan submission, analysis and determinations (Note that timetable for this stage will be determined through the earlier consultation and decision processes. It will be dependent on policy decisions in relation to fast-tracking and enhanced engagement)
Q4 2022	Statutory Licence consultation
Q1 2023	Licence decision
1 April 2023	Start of RIIO-2 price control for ED

12.4 We provide an indicative plan for the gas distribution, gas transmission, electricity transmission and electricity system operator price controls at Figure 1.

Figure 6: High-level timetable for RIIO-2



## Appendices

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## Appendix 1 - Real price effects and ongoing efficiency

### Introduction

We expect the price control allowances of an efficient network company to evolve over time. This evolution occurs for a number of reasons, including as a result of:

- input price inflation – ie price changes in the types of inputs that the company purchases
- ongoing efficiency improvements – ie the productivity improvements that we consider even the most efficient company is capable of achieving.

If the types of inputs purchased and activities conducted by network companies were similar to those used in producing the basket of goods included in a general output price inflation measure (such as CPIH), then such a measure would reasonably describe the evolution of allowances (as output price inflation measures include both movements in input prices and ongoing efficiency).

However, we think that the inputs and activities of network companies are different from those represented in the baskets of goods in general output price inflation measures, for example, in respect of the type of labour, mix of materials and capital intensity.

Accordingly, to properly capture the evolution of allowances over the price control period, we consider it appropriate to make separate assumptions for changes in input prices and ongoing efficiency.

We set price control allowances including the difference between our general inflation measure and certain input price indices that reflect the external pressure on companies' costs. We refer to these differences as Real Price Effects (RPEs).

Our ongoing efficiency assumptions represent the reduction in the volume of inputs required to produce a given volume of output. Whereas RPEs relate to the changes in the price of inputs used by network companies, ongoing efficiencies relate to changes in the volume of those inputs used to provide services to users.

Taken together, RPEs and ongoing efficiencies inform the change in the efficient cost of delivering services.

### RIIO-1 assumptions

In RIIO-1, we set fixed assumptions to adjust allowances over the eight-year price controls. These assumptions included the forecast difference between the Retail Price Index (RPI), which is our measure of general inflation for RIIO-1, and input price inflation. In general, we forecast input price inflation to be greater than RPI, resulting in us providing upfront allowances for RPEs.

Our approach to developing these allowances for the slow track companies<sup>110</sup> involved, in broad terms:

- constructing trends from price indices relevant to the inputs purchased by the networks (e.g. labour and materials), relative to RPI;
- weighting together these input price trends based on the assumed proportions of the inputs in cost areas (e.g. opex, capex and repex), and

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<sup>110</sup> For companies subject to fast track settlement in RIIO-1, RPEs were set on the basis of their Business Plan submissions. For the purposes of this section, we consider the approach to setting RPE allowances for companies subject to slow track settlement, unless otherwise stated.



- multiplying the resulting index by upfront allowances, resulting in upfront RPE allowances.

This approach took account of the different inputs purchased in each sector, allowing our RPE assumptions to vary across the network sectors. This variation related to both the input price indices chosen and the weightings applied, as we describe below.

### Input price indices

For slow-track companies in RIIO-1, we constructed trends from price indices relevant to the inputs purchased by the networks. These included:

- Labour (general and specialist)
- Materials - opex
- Materials – capex / repex
- Equipment and plant.

Table 11 shows the price indices we used in RIIO-1 in each of the above areas, along with the sources and the sectors to which we applied those indices.

**Table 11: Indices used for RPE assumptions in RIIO-1 price controls**

Index	Source	Sector(s) applied in
RPI	ONS	ED, ET, GD, GT
Labour		
Average earnings index for private sector incl. bonus	ONS	ED, ET, GD, GT
Average weekly earnings (AWE) Private sector incl. bonus	ONS	ED, ET, GD, GT
AWE construction incl. bonus	ONS	ET, GD, GT
AWE transport and storage	ONS	ET, GD, GT
PAFI Labour and Supervision in Civil Engineering	BCIS	ED, ET, GD, GT
BEAMA labour cost index: electrical engineering	BEAMA	ED, ET
Materials – opex		
FOCOS Resource Cost Index of Infrastructure: Materials	BCIS	ED, ET, GD, GT
Materials – capex / repex		
PAFI Plastic Pipes And Fittings	BCIS	GD
PAFI Pipes and Accessories: Copper	BCIS	ED, ET, GD
PAFI Pipes and Accessories: Aluminium	BCIS	ED
PAFI Structural Steelwork - Materials: Civil Engineering Work	BCIS	ED, GD, GT
Equipment and plant		
PAFI Plant and road vehicles	BCIS	ET, GD, GT
Machinery & equipment (Output PPI)	ONS	ED, ET, GD, GT
Manufacture of machinery & equipment (Input PPI)	ONS	ET, GD, GT
Plant and road vehicles: providing and maintaining	BCIS	ED

We decided on the above indices through the price control processes: we consulted on potential indices at the methodology stage, and received evidence and views from companies in their Business Plans and in response to our Initial Proposals, before publishing our decision in Final Proposals.

Through these processes we considered numerous views and evidence regarding appropriate indices. Amongst others, for setting RPE allowances for RIIO-1:

- We did not differentiate between contractor and directly employed labour in selecting indices. For RIIO-GD1 and T1, we explained this was because we did not want to set differential real wage allowances based on network companies' preferred operational/contract decisions, and because we did not consider the evidence supported a long-term differential.<sup>111</sup>
- We did not use companies' pay settlement data or energy sector real wage data to set RPEs. Rather, we sought indices that reflect the external pressures on the costs of network companies, relative to economy-wide inflation, but which are outside of their control.
- We stated that our policy is not to use commodity price indices in setting RPE assumptions, as network companies purchase final manufactured goods, not raw materials.
- We did not provide separate RPEs for costs that represented a small proportion of network companies' total costs, rather we assumed they would move in line with general economy-wide inflation. Examples included transport and electricity costs (for the latter we also noted that electricity comprised a higher proportion of RPI than of network companies' costs).<sup>112</sup>
- We did not apply regional RPE assumptions (either in regard of the choice of indices or the weighting of those indices within sectors).

We considered it appropriate to include an input producer price index in our RPE assumption for equipment and plant in RIIO-GD1 and T1 to ensure the forecast captured a range of evidence. We will consider whether to retain the use of this index for RIIO-2.

#### Weighting of input prices

For RIIO-1, we weighted input price trends based on the assumed proportions of the inputs in each cost area (e.g. opex, capex and repex).

For the GDNs and the slow track DNOs, we based the assumed proportions on the average cost structures as reported by companies in their Business Plans. That is, we used notional (rather than actual) cost structures, which ensured that we would not be rewarding potentially inefficient cost structures.

For NGET and NGGT, in the absence of comparators on which to base a notional structure, we used the cost structures stated in their respective Business Plans.

#### Ongoing efficiency

For RIIO-GD1 and T1, we developed ongoing efficiency assumptions, informed by productivity data from the EU-KLEMS database.<sup>113</sup> The ongoing efficiency assumptions we made for companies subject to slow-track assessment were:

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<sup>111</sup> For example, para 2.20 from *RIIO-T1/GD1: Initial Proposals – Real price effects and ongoing efficiency appendix*, July 2012.

<sup>112</sup> Para 2.30, *RIIO-T1/GD1: Initial Proposals – Real price effects and ongoing efficiency appendix*, July 2012.

<sup>113</sup> See: <http://www.euklems.net/>

- 1% for opex – informed by industry averages of partial factor productivity measures from 1970 to 2007 (which ranged from 0.5% to 2.8%), and
- 0.7% for capex and repex – informed by total factor productivity measures in construction and industry averages from 1970 to 2007 (which ranged from 0.3% to 2.3%).

We excluded those sectors from the above industry average productivity measures that we considered were not comparable to transmission and distribution activities. We also excluded the electricity, gas and water supply sectors (in part to avoid capturing the effects of catch-up efficiency following privatisation).

For RIIO-ED1, we had originally intended to set ongoing efficiency assumptions, common across DNOs, drawing on our approach and data from RIIO-GD1 and T1. We requested DNOs to separately state in their Business Plans their ongoing efficiency assumptions. DNOs subject to slow-track settlement proposed ongoing efficiency in the range of 0.8% to 1.1%. In Final Determinations, we accepted these as reasonable, noting that they were in line with our view of the savings an efficient company could make.

### **Implementation of indexation for RIIO-2**

To implement RPE indexation, we will need to consider and decide on:

- the frequency with which to update allowances for RPEs,
- whether to include forecasts of RPEs in upfront allowances, and
- other considerations.

#### Frequency of updating allowances

We have identified two main options for the frequency of updating allowances for RPEs:

- Option 1: annually, or
- Option 2: at the end of the price control period.

We consider that applying changes for RPEs at the end of the price control period (option 2), rather than annually (option 1), would provide for lower bill volatility and greater predictability in charges within the price control period, which is beneficial for users. However, updating allowances at the end of the price control period would be more likely to lead to larger changes in charges towards the start of the next price control period, when changes for the majority of the previous price control period are 'trued-up', and could therefore provide a poorer balance between existing and future consumers.

Adjusting for allowances at the end of the price control period would also likely be more complicated than updating them annually, as it would be necessary to revisit allowed revenues and the TIM for each year of the price control. Annually updating allowances for RPEs would, therefore, likely be simpler, although would add an additional administrative burden. Annual updating would also better facilitate other aspects of our framework (e.g. reporting a more up to date RoRE – reflecting allowances updated for RPEs).

#### Inclusion of forecast RPEs in allowances

We have identified three main options for forecasting RPEs:

- Option 1: To forecast RPEs as zero – ie to assume that input price inflation is the same as general inflation.

- Option 2: To fix a forecast of RPEs for the duration of the price control (using the same broad approach as for the current RIIO-1 price controls).
- Option 3: To annually update RPE forecasts with latest available input price data (assuming that RPE allowances are updated annually).

Option 1 (assuming that forecast RPEs are zero) would be the simplest option to implement. However, historically, RPEs have tended to increase allowances as input price inflation has tended to be higher than general inflation. To make no provision for RPEs would, therefore, be likely to result in initial allowances that would be lower than RPE adjusted allowances. Companies would need to operate within these likely lower allowances, until such time as they are adjusted. These adjustments would also be likely to mean more charging volatility than would be the case if forecasts were based on available information on RPEs.

Under option 2, forecast RPEs would be fixed for the duration of the price control, and would be updated (either annually or at the end of the price control) for outturn RPEs. We would expect to make the RPE forecast adopting the same broad approach as in RIIO-1 (e.g. using long-term real trends of relevant indices and available forecasts).

Under option 3, we would update RPE forecasts annually using the latest available RPE price indices (as such, option 3 is not available if we decide to adjust for outturn RPEs at the end of the price control).

Under both options 2 and 3, companies would carry the forecasting risk on RPEs until they are adjusted for outturn values. However, by updating forecasts within period, option 3 may somewhat reduce this risk within the price control period by using more recent information. Option 3 would be more complex and resource-intensive to implement as, unlike option 2, forecasts for RPEs would be updated each year (as well as allowances). Although adding complexity, the process for updating forecasts could be made relatively mechanistic.

#### Other considerations

In introducing and implementing RPE indexation, there are a number of other issues that will require further work and consideration. These other issues include, but are not limited to:

- companies' Business Plans – companies will need to provide information in their Business Plans to enable us to implement RPEs appropriately. This will need to include proposed indices (along with justification) and the costs to which they might apply, as well ongoing efficiency assumptions. We will need to be able to determine the impact of RPEs across aspects of the RIIO-2 Framework (ie not just on baseline allowances, but on allowances for uncertainty mechanisms, Price Control Deliverables, etc.). These considerations will inform our development of Business Plan data templates (BPDTs) and associated guidance. We intend to issue draft BPDTs in March 2019.
- governance arrangements – the process for updating allowances for RPEs will need to be documented. Amongst other things, the arrangements will need to set out what happens in the event of the temporary unavailability or the discontinuation (or amendment) of a price index.<sup>114</sup> These governance arrangements can be developed once we have decided on the approach to

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<sup>114</sup> Arrangements for these circumstances are already in place for the cost of debt indexation and could provide a template for RPEs.

implementation (e.g. frequency of updating allowances and whether to include and update forecasts)

- adoption of CPIH – we have confirmed our intention to use CPIH in calculating RAV and allowed returns, and are proposing the use of CPIH from RIIO-2 onwards (ie we do not propose to phase the move away from RPI – see Chapter 10 for details).

### **Real price effects questions**

#### **We welcome stakeholder views on our approach to real price effects in RIIO-2, including:**

CSQ35. Do you have any views on our proposed factors to consider in deciding on appropriate input price indices? Do you have any evidence justifying the need for RPEs and any initial views on appropriate price indices?

CSQ36. Do you agree with our initial views to retain notional cost structures in RIIO-2, where this is an option?

CSQ37. Do you agree with our initial views to update allowances for RPEs annually and to include a forecast of RPEs in allowances? Do you have any other comments on the implementation of RPE indexation?

### **Ongoing efficiency for RIIO-2**

As in RIIO-1, we propose to use the EU KLEMS dataset to assess UK productivity trends. The most recent release of the dataset covers the period from 1998 (or 1995, subject to the series) to 2015. Other regulators and competition authorities have used the EU KLEMS dataset, as well as regulatory precedents, in assessing ongoing efficiency. We also propose, as in RIIO-1, to focus on those sectors that have similarities with network companies, e.g. those that have significant asset management roles, and to exclude sectors (e.g. the energy sector) whose time series are heavily influenced by the increases in productivity realised after privatisation.

We welcome views of stakeholders on other sources of evidence that could be examined in assessing ongoing efficiency. We will also expect network companies to include within their Business Plans assumptions on ongoing efficiencies and how these assumptions were derived.

For the avoidance of doubt, we only propose to apply ongoing efficiency assumptions where we use RPEs that represent network companies' input prices. If there are any RPEs that represent output prices of the networks activity in question, then we do not propose to apply an ongoing efficiency assumption on top, as they will already reflect efficiency improvement.

### **Ongoing efficiency questions**

#### **We welcome stakeholder views on our approach to ongoing efficiency in RIIO-2, including:**

CSQ38. Do you agree with our proposal to use the EU KLEMS dataset to assess UK productivity trends? What other sources of evidence could we use?

## Appendix 2 – Supplementary information on late and early competition models

### Late competition

Under late competition models, the competition typically commences towards the end of the project development lifecycle, when the initial design has been determined and consents have been obtained.

We consider that the late competition models referred to above (the CATO model, the SPV model and the CPM) could be broadly applicable in each sector. We intend to consider in more detail any differences in design and implementation of the models in different sectors, reflecting any areas where they may differ. For example, where relevant industry arrangements and standards differ between the electricity and gas sectors.

#### Models of late model competition

Ofgem has been developing the following models to introduce the benefits of competition in the context of electricity transmission in RIIO-1: the Competitively Appointed Transmission Operator (CATO) model, the Special Purpose Vehicle (SPV) model and the Competition Proxy Model (CPM).

12.5 We have set out short descriptions of the models below. Further information on the detail of each model is available in the relevant policy documentation available on our website.<sup>115</sup>

- **Late CATO<sup>116</sup> build.** Under late CATO build a 'preliminary works party' (most likely a networks licensee) would complete all necessary preliminary works for a new, separable and high value project. Ofgem would then run a tender to determine a CATO responsible for construction and operation of the project. The CATO would bid a 'tender revenue stream' to construct, own and operate the asset for a long-term operational period (currently expected to be 25 years).
- **SPV model.** Under the SPV model, the incumbent network licensee would run a tender to appoint an SPV to finance and deliver a new, separable and high value project on the licensee's behalf through a contract in effect for a specified revenue period. The allowed revenue for delivering the project would be set over the period of its construction and a long-term operational period (currently expected to be 25 years).
- **CPM.** Under the CPM, Ofgem would utilise relevant benchmarks from other regimes, alongside other market information, to set a project-specific revenue for the incumbent network licensee that we consider would have eventuated from an efficient competitive process for construction and long-term operation (currently expected to be 25 years) of a new, separable and high value project.

#### *CATO model and relevant legislation*

In line with our previous documentation on the CATO model,<sup>117</sup> we consider that the application of the CATO model in electricity transmission requires legislative change. We

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<sup>115</sup> <https://www.ofgem.gov.uk/electricity/transmission-networks/competition-onshore-transmission>

<sup>116</sup> We refer to 'transmission owner' here in order to retain the previous CATO acronym – in practice we would likely change the name of the model when applying it to distribution assets.

<sup>117</sup> We most recently updated stakeholders in September 2018:

[https://www.ofgem.gov.uk/system/files/docs/2018/09/update\\_on\\_competition\\_2018\\_final.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/09/update_on_competition_2018_final.pdf)

will further consider its application into the gas sectors and the electricity distribution sector. We remain committed to working with government to seek an appropriate opportunity to introduce the legislative change necessary to implement the CATO model.

#### *Defining a project*

It is important that projects identified by network licensees are scoped appropriately to ensure the benefits of late competition can be delivered. In May 2016, we set out in detail our proposed approach to defining and packaging projects suitable for competition in ET.<sup>118</sup> In November 2016, we decided that our approach to packaging projects would consider factors including project deliverability, market interest and our key principles.

Our key principles deal with the bundling, splitting and re-packaging of projects.<sup>119</sup> Our initial view is that our existing approach to projects and packaging will be applicable in the other sectors, and we will provide an update in May 2019 on how we will consider the scope of a project to be subject to competition.

#### Criteria for late model competition and applicability to other sectors

In January 2018, we published our draft 'Guidance on the Criteria for Competition'.<sup>120</sup> We have said in our previous policy documents<sup>121</sup> that we intend to consider the Competition Proxy and SPV delivery models for all future SWW projects that are subject to a needs case assessment during RIIO-T1.

Our existing criteria for identifying projects suitable for competition were originally developed in the context of the Integrated Transmission Planning and Regulation (ITPR) project in 2015, where one of the conclusions<sup>122</sup> was that it is in consumers' interests to extend the use of competition to onshore electricity transmission assets that are new, separable, and high value. Our view was that competition for onshore assets that meet these criteria means that benefits from competition such as cost savings and innovation will outweigh the administrative and interface costs of competition.

We have considered whether applying our existing new, separable and high value criteria to the two gas sectors and electricity distribution would be appropriate.

#### *Our analysis of the criteria for competition*

We have considered each of our existing criteria against the original objective of the criteria from ITPR, for each sector under consideration. Table 12 sets out our analysis for each sector. Although we will set the framework for RIIO-ED2 at a later date, this table also incorporates our early thinking on the criteria's possible application in electricity distribution.

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<sup>118</sup> [https://www.ofgem.gov.uk/system/files/docs/2016/05/ecit\\_may\\_2016\\_consultation\\_0.pdf](https://www.ofgem.gov.uk/system/files/docs/2016/05/ecit_may_2016_consultation_0.pdf)

<sup>119</sup> Further detail in our decision document:

[https://www.ofgem.gov.uk/system/files/docs/2016/11/ecit\\_november\\_2016\\_decision.pdf](https://www.ofgem.gov.uk/system/files/docs/2016/11/ecit_november_2016_decision.pdf)

<sup>120</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/01/draft\\_criteria\\_guidance.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/01/draft_criteria_guidance.pdf)

<sup>121</sup> Most recently in September 2018:

[https://www.ofgem.gov.uk/system/files/docs/2018/09/update\\_on\\_competition\\_2018\\_final.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/09/update_on_competition_2018_final.pdf)

<sup>122</sup> <https://www.ofgem.gov.uk/publications-and-updates/integrated-transmission-planning-and-regulation-itpr-project-final-conclusions>

**Table 12: Applicability of criteria across sectors**

	Objective (May 2015)	Gas Transmission	Gas Distribution	Electricity Distribution
New	"...more easily maintain regulatory continuity and clarity for existing asset owners, which is important for achieving long term stability and therefore value for consumers." "...new entrants avoid risks inherent in taking over assets that have been operational for some time."	Regulatory continuity and clarity for existing owners still relevant and important. Bidders would similarly need to consider risks in taking over existing TO assets.	Regulatory continuity and clarity for existing owners still relevant and important. Bidders would similarly need to consider risks in taking over existing GDN assets.	Regulatory continuity and clarity for existing owners still relevant and important. Bidders would similarly need to consider risks in taking over existing DNO assets.
Separable	"Separable assets can be scoped for tendering more easily and efficiently." "...minimises interface complexities between existing asset owners...and new entrants, both during construction and operation."	Beneficial for all parties involved to be able to define relevant assets clearly. Similar need for clear boundaries between those assets delivered competitively and other [TO] assets. We do not consider there to be any material technical barriers to new entrants in GT.	Beneficial for all parties involved to be able to define relevant assets clearly. Similar need for clear boundaries between those assets delivered competitively and other [GDN] assets. We do not consider there to be any material technical barriers to new entrants in GD.	Beneficial for all parties involved to be able to define relevant assets clearly. Similar need for clear boundaries between those assets delivered competitively and other [DNO] assets. We do not consider there to be any material technical barriers to new entrants in ED.
High value	"benefits from cost savings and innovation will significantly outweigh the potential administrative and interface costs" "tenders for projects valued at or above £100m are likely to attract significant market interest"	In line with our IA, costs and benefits are of a similar materiality and a threshold of £100m seems appropriate. Likely similar bidder market interest considerations in GT to other sectors.	In line with our IA, costs and benefits are of a similar materiality and a threshold of £100m seems appropriate. Likely similar bidder market interest considerations in GD to other sectors.	In line with our IA, costs and benefits are of a similar materiality and a threshold of £100m seems appropriate. Likely similar bidder market interest considerations in ED to other sectors.

*Our initial view*

In summary, our initial view is that the current new, separable and high value criteria are appropriate for identifying projects suitable for competition in both gas sectors and electricity distribution.

Where appropriate, we consider that consistency across the sectors has the additional benefit of promoting regulatory certainty and that whole system approaches can be treated equally across different networks. We also intend to balance the benefits of not changing the competition criteria (both within and across sectors throughout the price



control) with the need to keep the criteria under review to ensure that they continue to produce favourable outcomes for consumers.

We have set out below our assessment of the detailed definitions of new, separable, and high-value, and how those definitions could be changed to be applicable across all sectors. Our view that there is a benefit in aligning the criteria for all sectors.

In the course of the ITPR project<sup>123</sup> we considered other criteria, including technology type, system criticality and operability, planning sensitivities and risk to timely delivery. We do not consider that any further explicit criteria would be required for the gas and electricity distribution sectors, over and above the existing criteria developed in the context of ET. However, we would consider the 'deliverability' of a project when making a decision on whether and how to deliver a project.

We have set out previously in ET we want to ensure that competitively appointed parties identified through the competition are financially robust, have appropriate expertise and will adhere to industry requirements. We will continue to give further consideration of the potential impacts on safety arising from increased use of competition. At this stage, we are not aware of any safety issues that would emerge from further competition so long as the operator acts in line with industry and safety requirements (including any Health and Safety Executive requirements).

### **Late competition models questions**

CSQ52. Do you agree with the proposed criteria we have set out for assessing the suitability of late competition models? Would you suggest any other criteria, and if so, why?

#### *Draft impact assessment of our expansion of competition into the gas and electricity distribution sectors*

We have undertaken a draft impact assessment (IA) looking at the introduction of late competition into the gas and electricity distribution sectors (and the continuance of our arrangements to apply it in onshore electricity transmission), published alongside this consultation.<sup>124</sup> This is a separate document to the Preliminary impact assessment of our proposals in Appendix 5, which is a higher-level assessment of our package of RIIO-2 proposals.

Our draft IA considers the costs of designing and enabling competition across all sectors, and then considers the costs of undertaking competitions for a variety of project numbers and sizes. Stakeholders should refer to the draft IA for further detail of our methodology and results.

In summary our draft IA shows that the costs of competition, using our highest cost assumptions, could be as high as 10.8% of the capital cost of a project where we only apply competition to a single, £100m project in RIIO-2. However, where there are larger and/or more projects within the price control this cost could fall to around 4% of the total capital cost of the projects delivered through the three delivery models considered (CATO model, SPV model, and CPM).

Evidence from the OFTO regime has demonstrated savings from competition of 19 -23%. Our most recent impact assessment on the SPV model and the CPM in onshore electricity

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<sup>123</sup> See Appendix 5 of the ITPR draft conclusions for further detail: <https://www.ofgem.gov.uk/publications-and-updates/integrated-transmission-planning-and-regulation-itpr-project-draft-conclusions>

<sup>124</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/12/competition\\_draft\\_ia\\_dec\\_2018.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/12/competition_draft_ia_dec_2018.pdf)

transmission also indicate savings from competition of 4-19%. As such, we consider that competition is likely to deliver savings that exceed the costs referred to above, therefore delivering benefits for consumers. We also note in our accompanying draft IA that competition can deliver a number of other benefits to consumers, for example in terms of innovation and price discovery for the wider price control.

#### **Draft impact assessment on late competition questions**

CSQ53. Do you have any views on the costs and benefits we have used for our draft impact assessment on late competition?

CSQ54. Are there any considerations for a specific sector we should include in our IA?

#### *Adapting the late competition criteria for other sectors*

We have considered whether there needs to be different definitions in each sector, reflecting their specificities, or whether the definitions developed in the ET sector should be amended such that they are appropriate in all sectors. Our initial view at this stage of development is to seek to align the criteria across all sectors.

We have set out in Table 13 below our initial view of how the existing detailed definitions could be changed to seek to ensure they are appropriate in all sectors.

**Table 13: Application of late competition criteria for other sectors**

Criterion	Definition draft January 2018	GT considerations	GD considerations	ED considerations
New	<ul style="list-style-type: none"> <li>A completely new transmission asset or a complete replacement of an existing asset.</li> </ul>	No change required. 'Transmission' reference applicable, but not necessary.	Remove reference to 'transmission'.	Remove reference to 'transmission'.
Separable	<ul style="list-style-type: none"> <li>The boundaries of ownership between these assets and other (existing) assets can be clearly delineated.</li> <li>Transmission assets do not need to be electrically contiguous or electrically separable from other assets to be considered separable.</li> <li>The System Operator may on a case-by-case basis propose electrical separability at project interfaces, if the SO considers there is a cost-benefit justification for this.</li> </ul>	<p>Potentially remove references to 'electrically separable' and 'system operator'.</p> <p>Alternatively, seek to identify similar separability requirements in Gas and an appropriate third party.</p>	<p>Potentially remove references to 'electrically separable' and 'system operator'.</p> <p>Alternatively, seek to identify similar separability requirements in Gas and an appropriate third party.</p>	<p>Potentially remove references to 'electrically separable' and 'system operator'.</p> <p>Alternatively, seek to identify an appropriate third party.</p>
High-value	<ul style="list-style-type: none"> <li>A threshold set at or above £100,000,000 of expected capital expenditure at the point of our initial assessment of the appropriate delivery model.</li> <li>The threshold will be a fixed nominal value and not indexed to a reference year.</li> <li>Expected capital expenditure will be assessed in the price base of the year of assessment.</li> <li>The expected capital expenditure will include:                             <ol style="list-style-type: none"> <li>purchasing the component parts of the relevant assets</li> <li>the construction of the relevant assets</li> <li>the land at which the relevant assets are situated</li> <li>compliance with the conditions attached to consents</li> <li>the third-party works upon which the operation of the relevant assets depends</li> <li>project management</li> <li>itemised risk and contingency allowances</li> <li>the procurement of itemised goods, services and works</li> <li>any other cost elements which can be reasonably justified as integral or relevant to the construction or function of the relevant assets.</li> </ol> </li> </ul>	No change required.	No change required.	No change required.

## Early Competition

Whereas late competition reveals and drives down the cost of delivering a project to satisfy a system need, early competition can reveal more cost-effective ideas for how to satisfy those needs. Early competition can either focus only on providing the idea (ie the high-level system solution), or could also include delivery of the idea (ie to construct, finance and operate the project associated with that system solution). These high-level approaches are discussed further below. Under early competition the design and cost would be determined through competitive tendering.

Apart from the competition intended to determine a future energy solution for Shetland, implementation of early competition is new to Ofgem. We note though that some networks already use non-network options to address network issues. We intend to further explore various models of early competition, and we are seeking views on our approach.

The ESO is developing its approach to the annual Network Options Assessment (NOA) to incorporate distribution network and non-network options to solve requirements on the electricity transmission system.<sup>125</sup> This, however, is currently limited to only the electricity transmission sector, and its development plans do not envisage the 'competition for ideas' that we are interested in progressing.

In this section, we outline some of the issues that will have to be addressed when designing an early competition model. We note that other regulators have implemented early competition models, with substantial benefits to consumers. Therefore, we focus our consultation on outlining high-level approaches to early competition and discussing how the potential range of system needs or projects to be delivered under an early competition approach might be identified.

### *Potential drawbacks of early competition models*

While early competition can generate benefits to consumers by encouraging innovation and cost efficiency in solving network problems, it may also have certain drawbacks which must be addressed directly.

- *Deliverability:* There may be benefits if the entity that proposes the solution is also tasked with delivering it, to ensure only deliverable solutions are proposed. But if the competition is run too early, the solution may require consents and permissions which later do not materialise and you have to restart the process.
- *Access to land:* Network licensees are able to gain access to land in order to undertake design exercises, pre-construction processes, and eventual project delivery. Consideration would need to be given as to how third parties might access land in order to submit robust and comprehensive tenders under an early competition model.
- *Change in circumstances:* Circumstances could change after a contract has been awarded through early competition, which means a different solution may become more appropriate, or the system need itself may disappear. For example, for the Shetland New Energy Solution, new information in relation to

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<sup>125</sup> National Grid, Network Development Roadmap Consultation, May 2018: <https://www.nationalgrideso.com/sites/eso/files/documents/Network%20Development%20Roadmap%20consultation.pdf>

Shetland's energy security meant that the proposed solution from the competition was no longer needed at that time.<sup>126</sup>

### *International examples of early competition*

Early competition has been applied in a number of different countries and sectors. In the energy sector, this is most developed in North America. Recent experiences in Midcontinent USA<sup>127</sup> suggest a greater than 15 per cent saving arising from early competition.<sup>128</sup>

### **Early competition models questions**

CSQ55. What are your views on the potential issues we have raised in relation to early competition? How would you propose mitigating any issues and why? Are there additional issues you would raise?

CSQ56. Are there other potential drawbacks of early competition?

CSQ57. Do you consider that there are any existing examples of early competition (including international examples or examples from other sectors) which demonstrate models of early competition that could generate consumer benefit in the GB context?

CSQ58. What are your views on the advantages and disadvantages of the high-level approaches to early competition outlined? How would you recommend mitigating any disadvantages?

CSQ59. Do you have any views on the potential criteria for identifying projects for early competition discussed above? Would you suggest any other criteria, and if so, why?

### High level approaches to early competition

For the purposes of consultation, we outline two high level approaches to early competition. The first is where the competition for ideas and delivery are separated into two stages; the second is where one competition process is run for both idea and delivery.

#### *Two stage process (competition for idea followed by separate competition for delivery)*

The competition for ideas (i.e. high-level system need solution) and for delivery (i.e. to construct, finance and operate the project associated with that system solution) can be split into two different competition stages.

Once a system need has been identified, a competition is run to attract the idea most likely to deliver the most benefits to consumers (on the basis of the best overall cost benefit case). There are a number of ways to reward the winning party, including through a success fee, the right (and associated allowed revenue) to carry out the pre-construction works for the project, or through an immediate short-listing into the second stage (ie delivery) competition.

Under this approach, the winning idea would be further developed such that tender specifications could be drafted for the second stage of a competition. There would seem to be a number of different ways in which the competition could proceed from first to second stage. For example, the winning party could develop the design at a high-level or

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<sup>126</sup> [https://www.ofgem.gov.uk/system/files/docs/2017/11/shetland\\_new\\_energy\\_solution\\_decision\\_-\\_final\\_0.pdf](https://www.ofgem.gov.uk/system/files/docs/2017/11/shetland_new_energy_solution_decision_-_final_0.pdf)

<sup>127</sup> This is an area that extends from northern Texas and covers portions of Nebraska, Kansas and Oklahoma.

<sup>128</sup> Midcontinent ISO: Hartburg-Sabine Junction 500 kV Selection Report: <https://cdn.misoenergy.org/Hartburg-Sabine%20Junction%20500%20kV%20Selection%20Report296754.pdf>

could have substantial responsibilities to develop the project from design through to obtaining planning consents.

An alternative example would be for an existing licensee (such as the ESO) to undertake some or all these tasks. Further work would be required to understand any issues that may arise as a result of the roles and responsibilities being assigned to different parties. Our current expectation is that the second stage of competition (for delivery) could operate like a late competition.

**Table 14: Two stage early competition process – potential advantages and disadvantages**

Advantages	Disadvantages
<i>Reduced complexity</i> – by splitting the competition process into ideas and their delivery, each competition can be more tailored and less complex.	<i>Time</i> – Running two stages of competition may take longer. Longer processes may reduce the number of projects which can be eligible for competition, as delivery times will need to be taken into consideration.
<i>Best-value</i> – A two stage approach offers the possibility that the best idea can be coupled with the best value delivery party.	<i>Responsibility</i> – Under a two-stage process, the winner of the first stage will not necessarily be responsible for the delivery of the project. This may reduce the incentive to ensure the idea proposed is deliverable to the specified cost and design. Liabilities and indemnities would need to be carefully considered.
<i>Value of idea and flexibility</i> – By isolating the ideas stage, the competition can reveal ideas and approaches which can potentially be used elsewhere in the system (subject to any intellectual property limitations). It also provides more flexibility in how the idea is used in the delivery stage.	<i>Cost</i> – The primary cost of undertaking competition is the resourcing required to run tenders. A two stage competition may risk increasing the overall cost of competition, as there are costs associated with an additional tender round.

*One stage process (competition for idea and delivery of solution)*

An early competition can be designed such that tenderers propose both the idea and delivery solution that in combination are likely to deliver the most benefits to consumers (on the basis of the best overall cost benefit case). A one stage process would require evaluation of bidders’ proposals for an idea at the same time as evaluating the bidders’ proposals for delivery of the idea. It may be difficult to evaluate fully costed bids at such an early stage. However, it appears noteworthy that the most recent Midcontinent ISO early competition tender has set a revenue cap for the entire project, as offered by the selected proposer. This may suggest that market participants have a sufficient balance between cost certainty and risk appetite to fix cost levels even at an early stage through voluntary cost containment measures.<sup>129</sup>

<sup>129</sup> Cost containment measures are methods by which the proposer limits its allowed revenue return from a project up front to strengthen their proposal. In the recent Hartburg-Sabine Junction project, run by Midcontinent ISO, all proposals offered some form of cost containment measure, including: a nominal implementation cost cap; to forego an allowance of funds used during construction; to forego any recovery of funds for construction work in progress; a fixed (and comparatively low) ROE; a fixed (and comparatively low) equity percentage of capital structure; a capped level of operations and maintenance costs for a set number of years; and a capped annual transmission revenue requirement for a set number of years.

**Table 15: One stage early competition process – potential advantages and disadvantages**

Advantages	Disadvantages
<p><i>Better ideas</i> – by not having a separate focused competition on ideas, a one stage process might deliver better (ie more deliverable) ideas. This is because the prize of delivering the project (particularly if combined with cost control measures) could encourage a greater commitment of effort (potentially through consortium bidders) and realistic bids.</p>	<p><i>Sub-optimal solution</i> – there is a risk that a single stage competition delivers lower overall benefits. If the winning bidder is not proposing the best idea <i>and</i> the most cost effective delivery, the overall benefits will be lower than the theoretical maximum. Equally, it is possible that the efficient cost of delivery will either not be determined through such an early competition, or that the lack of competitive pressure in delivery will lead to significant cost escalations over time (although this could be mitigated to some extent by cost control measures).</p>
<p><i>Responsibility</i> – Where a firm bids for the delivery of a specific idea, they would be expected to be cognisant of all the potential risks and costs of delivering that idea. This reduces the burden of assuring the technical feasibility of the idea by the tender runner. There would also be fewer interfaces with other parties, ie no need to hand over the project to another party</p>	<p><i>Complexity</i> – a one stage competition requires additional complexity in the tender material to cover both specification and delivery aspects. It is also likely to entail more subjectivity, given the associated uncertainty, in the assessment of bids in order to determine the most beneficial overall solution.</p>
<p><i>Cost</i> – running a single competition could reduce the costs of competition.</p>	<p><i>Cost</i> – alternatively, the cost of running a single, significantly more complex competition, could be higher.</p>

CSQ58. What are your views on the advantages and disadvantages of the high-level approaches to early competition outlined? How would you recommend mitigating any disadvantages?

Criteria for early competition

Our consultation and analysis of early competition will inform our view on the model (if any) we think best produces benefits for consumers. However, at this stage, we are seeking views as to what criteria we might apply to identify the projects or system needs that could be subject to early competition. For this purpose, we outline our early thinking on potential criteria to identify such needs or projects.

In considering potential criteria for early competition, it may be useful to consider the applicability of the criteria we propose to apply for late competition. We set out below our early thinking on the potential appropriateness of these criteria to early competition.

**Table 16: Criteria for early competition**

Criteria	Objective (May 2015)	Initial analysis
<p><i>New</i></p>	<p>"...more easily maintain regulatory continuity and clarity for existing asset owners, which is important for achieving long term stability and therefore value for consumers."                      "...new entrants avoid risks inherent in taking</p>	<p>If this criterion were maintained for early competition, it would need to be adapted for purpose. This is because it could be pre-emptive to apply a criterion of 'new' when the potential solutions are not yet known. Indeed, given the purpose of early competition, this criterion may not be practicable. However, there may be some system needs where the class of solutions is more or less likely to involve new or existing assets. Given that this criterion was intended to provide clarity around ownership and risk of assets, there could be value in considering how this may be</p>

	over assets that have been operational for some time.”	adapted to apply to identify needs/projects for early competition. In a two-stage competition process, the new criteria could more readily apply to the second (delivery) stage.
<i>Separable</i>	<p>“Separable assets can be scoped for tendering more easily and efficiently.”</p> <p>“...minimises interface complexities between existing asset owners...and new entrants, both during construction and operation.”</p>	Under early competition, the potential solutions to a system need are not known at the time of tendering. We consider this to be a useful criterion (as it is powerful in reducing the potential complexities between a new entrant and the incumbent network), <sup>130</sup> but will further consider at which stage of a competition it would be applied, and whether its application in early competition would render potential beneficial solutions ineligible. It may be possible to identify certain classes of system needs or project types for which separability is more or less an appropriate criterion.
<i>High value</i>	<p>“benefits from cost savings and innovation will significantly outweigh the potential administrative and interface costs”</p> <p>“tenders for projects valued at or above £100m are likely to attract significant market interest”</p>	<p>It may be helpful to have a value threshold to ensure the benefits outweigh the costs of competition. Conversely, there is likely to be much greater heterogeneity of types of network problems that may lend themselves to early competition approaches, which means that a rigid project value criteria may be less appropriate. We should also note that the high value threshold in ED for re-openers is £25m, whereas in RIIO-T1 we decided on a high value threshold of £100m, to ensure that the costs of tendering were outweighed by the likely benefits of the competition. Given that the eventual solution would not be known at the time of identifying the system need or project, further work would need to be undertaken to determine at which stage of the competition the criterion would apply. One approach could see the threshold applied to a cost reference model of a presumptive/traditional network option.</p> <p>There are factors that relate to both the cost and benefits of early competition that we would need to consider in determining an appropriate value threshold. Depending on the competition model selected, the tendering costs for early competition may be higher than in late competition. If there were a two stage competition approach, then running the additional tender would come with additional costs. If there were a one stage early competition, it may involve greater complexity which would come at a higher overall cost than in a two stage approach. Alternatively, a different model of early competition, in which the first stage was limited to high level ideas, could see minimal costs associated with the competition.</p> <p>Conversely, the benefits of early competition could be higher than late competition. This is because the competition for ideas is intrinsically designed to reveal the most cost-effective overall solutions for system needs. However, as a counterbalance to this, it is likely that certain cost containment measures may need to be applied in order to retain pressure on design and delivery costs following an early competition.</p> <p>Therefore, early competition, compared to late competition, could have both higher tender costs (pushing a potential high-value threshold up) and greater benefits (pulling a potential threshold down). As we further consider options</p>

<sup>130</sup> Criteria for onshore transmission competitive tendering, May 2015: <https://www.ofgem.gov.uk/publications-and-updates/criteria-onshore-transmission-competitive-tendering>



		for early competition models, we will undertake analyses to determine what, if any, threshold for early competition would deliver benefits to consumers. We would also need to consider at what point in the development process this threshold is assessed.
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We have identified the following additional potential criteria which may be applicable for early competition only:

- *Time criticality* – The implementation of early competition, whether through a two stage or more complex one stage tender process, is likely to be more time-intensive to deliver. This suggests a criterion that ensures that there is sufficient time to undertake an early competition before a system need becomes critically required. However, it should be noted that the time associated with running competitions should be offset against the time that would otherwise be involved in the procurement of supply chain and/or in securing planning consent under the counterfactual arrangements.
- *Certainty* – In large and interlinked energy systems, needs can change as circumstances change. This can occur because the initial reason for a system need falls away (for example, anticipated demand growth slows), or because another change in the system addresses that identified need (for example, a new generation connection). Such changes in the system could also mean that the need changes, so that a project of different specification is required to address it. Therefore, our early thinking is that two characteristics of a system need which may make it suitable for early competition are:
  - *Certainty of Need* – sufficient certainty around the requirement to address the system need. In the situation that an early competition is run to address a system need that subsequently falls away, the costs of that competition remain fixed, but no direct benefits of competition are realised.<sup>131</sup>
  - *Certainty of Specification* – sufficient certainty such that the system need can be appropriately specified for the purposes of competition. While defining a system need very broadly may increase the certainty that a solution will remain required, this lack of specificity would undermine the competition process, for example by making evaluation of bids highly subjective.
- *The range of technical solutions that may be available* – early competition is intended to identify different ideas for solutions to network issues. Where there is only a narrow range of likely solutions it may not be appropriate to explore early competition.

CSQ59. Do you have any views on the potential criteria for identifying projects for early competition discussed above? Would you suggest any other criteria, and if so, why?

<sup>131</sup> It may not be accurate to say that 'no' benefits would be derived from this situation, as there could still be substantial value in the information generated through the tendering process.

## Appendix 3 - Proposed Business Plan incentive

We propose a four-stage assessment process for determining rewards or penalties for Business Plans under our proposed Business Plan incentive:

- Stage 1: compliance check
- Stage 2: evaluation of costs
- Stage 3: evaluation of quality
- Stage 4: upfront reward/penalty determination

### **Stage 1: compliance check**

This stage aims to ensure that the Business Plan that we receive is complete and that companies' have met the obligatory minimum requirements. If companies pass the first stage they continue to stages two to four.

If companies do not pass this stage, this could lead to:

- Being required to resubmit parts of their plans
- Granting of a sharing factor towards the lower end of a proposed range of sharing factors
- An upfront penalty equal to a company classified as 'Poor Value' would be levied in stage four.

As part of the assessment for stage one, we may assess:

- Completeness of the Business Plan – have companies submitted all the information required in a clear and understandable manner
- Whether the plan been subject to a high-level of quality assurance to prevent inaccuracies and mistakes
- Whether the plan meets our formatting requirements, such as obligatory cross-referencing and page limits
- Whether the plan ensures companies comply with relevant regulations, such as for safety
- Whether the company has used the enhanced engagement process to test and challenge the plan – we will consider whether the company provided draft plans in line with the timetable. Our assessment on whether a company has undertaken the necessary engagement will be supplemented with feedback from the enhanced engagement groups.

### **Stage 2: evaluation of costs**

This stage aims to drive companies to be ambitious in providing plans that are cost efficient.

The stage relies on our cost assessment process. Similar, to previous price controls, we propose to form a view of totex and compare it to each company's totex submission in their Business Plan submitted to us in December 2019.

Based on the ratio between the companies' submission and our view of costs, we would classify the competitiveness of each company's costs into one of three categories: Good, Average and Poor.

Ratio (X): a company's forecast divided by Ofgem's forecast	$X \leq 1$	$1 < X \leq 1.04$	$X > 1.04$
Category	Good	Average	Poor

Based on the indicative table above, a ratio of 1 would mean that a company has submitted a totex forecast that matches our view of costs. A ratio of 1.04 would mean that a company has submitted a Business Plan that is 4 per cent higher in comparison to our forecast.

We note that a ratio of 1.04 roughly equated to the average IQI breakeven points<sup>132</sup> set across the sectors in RIIO-1. Setting the top of the Average category equivalent to this point may be reasonable to account for possible inaccuracies in Ofgem's forecasts.

The output of this stage (Good, Average, Poor) will feed into stage four.

*Which costs could be within the scope of the stage two assessment?*

If we were to adopt the blended sharing factor approach, we consider there are two options for which costs should be included for the calculation of this stage:

- The entire totex: including cost items that we classify as 'low confidence baseline' in our assessment.
- Partial totex: including only cost items that we classify as 'high confidence baseline'.

We believe that the first approach is more beneficial in incentivising companies to submit ambitious cost forecasts for more uncertain elements of totex.

Alternatively, incorporating low-confidence baseline cost elements as part of stage 2 assessment may increase the risk that our view of costs may be influenced by companies as for these cost elements we may have less independent evidence with which to assess costs.

For an Ofwat cost sharing mechanism option, we propose to consider totex in its entirety since we would not distinguish between low and high confidence cost items under this approach.

**Stage 3: evaluation of quality**

At this stage, we would assess elements of Business Plans other than costs. The emphasis here would be to incentivise companies to provide us with information that we can use to set a price control that will deliver more value back to consumers.

A company's plan will be assessed against a number of criteria at this stage. We do not propose to apply weighting to these.

In our updated Business Planning guidance that we will publish shortly, we provide more detail on the characteristics of a plan that may distinguish it as either good or poor.

**Stage 4: upfront reward/penalty determination**

This stage would use the inputs from stages two and three to determine an overall score for each Business Plan. Depending on our evaluation of cost or quality, companies would qualify into one of five categories:

<sup>132</sup> IQI breakeven point and represented the totex ratio above which a company that submits an accurate forecast (forecast equals to actual expenditure) is subjected to penalties. For example, in ED-1 this point was at a totex ratio of around 103, meaning that a company would be penalised if it submitted a forecast above 103 (compared to our view of 100) and then spent the amount it forecasted. In GD-1 and GT/ET-1 the IQI breakeven points were set at 104 and 105 respectively.

Quality/cost	Good	Average	Poor
Good	<b>Good Value</b> Max +2% totex equivalent	Value Max +1% totex equivalent	Standard
Average	Value +1% totex equivalent	Standard	Low Value -1% totex equivalent (fixed)
Poor	Standard	Low Value -1% totex equivalent (fixed)	Poor Value -2% totex equivalent (fixed)

The Standard category indicates the company meets our expectations and achieves a satisfactory cost-quality balance. For companies to score in the 'green' categories (Good Value or Value), they would need to submit a Business Plan that provides sufficient additional value to justify an upfront reward. Companies that score within the 'red-orange' categories indicate a plan that is below the standard that we would expect and will face a penalty.

We propose a fixed penalty for the penalty categories. We believe that the penalties for companies that achieve low value for money should not depend on other companies' performance.

If a company fails to pass the compliance check in stage 1, we propose it would automatically be assigned to the Poor Value category and face the corresponding upfront penalty of that category.

For companies that achieve the reward category, we believe there is a rationale for introducing a competitive element:

- The introduction of a competitive dynamic could incentivise companies to perform better than their peers. The introduction of two categories which qualify for a reward could enable companies that truly distinguish themselves to benefit from a reward which has less chance of being diluted by other companies' performance.
- If a high volume of companies qualify into the 'green' categories, this may indicate that companies' proposals may be less exceptional than we initially thought and our bar on performance may have not been high enough. Additionally, if many companies qualify for 'green' categories, there are reduced prospects of using the information from one company to influence the settlement of another. The 'value' that has been revealed may be less useful and hence warrant a lower reward.
- A competitive reward may limit the financial exposure to consumers of rewarding a high number of companies at the outset of the price control.

The reward or penalty we propose to introduce would take into consideration different company sizes. Our proposal is to do this by basing the reward or penalty for each company of its proposed RIIO-2 totex. See below an illustration of how a competed reward could work:

### Competed Business Plan reward – illustration

The competed reward could work in a way that if more than one company qualifies for reward, this could 'dilute' the reward for any other company qualifying for a reward. This can be shown using an example of two cases where two companies within a sector qualify for a positive reward:

Case 1: two companies in the Value category

	Company 1	Company 2	Max per category
Value	0.5% of totex	0.5% of totex	1% of totex

Case 2: one company in the Value category and another in the Good Value category:

	Company 1	Company 2	Max per category (incremental, per company)
Good Value		1% of totex	1% of totex
Value	0.5% of totex	0.5% of totex	1% of totex
<b>Total reward</b>	<b>0.5% of totex</b>	<b>1.5% of totex</b>	<b>2% of totex</b>

As seen in the example, when more than one company qualifies for a reward, companies 'split' the reward in totex equivalent terms (relatively to the forecasted totex allowance). As is also seen in case two, a company that qualifies for the higher category (Good Value) receives the incremental value of the reward between Good Value and Value, but 'splits' the reward on the Value category with the other company that qualified to the Value category. This ensures that a company that qualifies for the Good Value reward will always receive a reward that is higher than the one that a company that qualified to the Value category would receive.

### Business Plan and totex incentives questions

CSQ66. Under the blended sharing factor approach, should the scope of stage 2 evaluation of cost assessment be based on the entire totex or only on cost items that we consider we can baseline with high confidence?

CSQ67. What should be the method for categorising cost forecast as High, Medium or Low? Are the indicative boundaries of 1.0 (High to Medium) and 1.04 (Medium to Low) appropriate?

CSQ68. What should be the range for the Business Plan reward/penalty? Is the range of ±2% of totex equivalent appropriate for incentivising high quality and ambitious Business Plan submissions (e.g. Value or Good Value)?

## Appendix 4 - Return adjustment mechanisms

The appendix begins with describing the RAMs options in further detail, continues with an assessment of the three main RAMs options, ie the Class 1 and Class 2 approaches, and concludes with a description of the three anchoring variants and their comparative assessment.

### Options for assessment

In this section, we explain in further detail the options we are considering for RAMs:

- Class 1: individual company performance triggered adjustments:
  - Sculpted sharing
- Class 2: sector average performance triggered adjustments:
  - Sector average sculpting (SAS)
  - Anchoring – including proportional anchoring and another two variants
- Discretionary adjustments

#### Class 1: Sculpted sharing

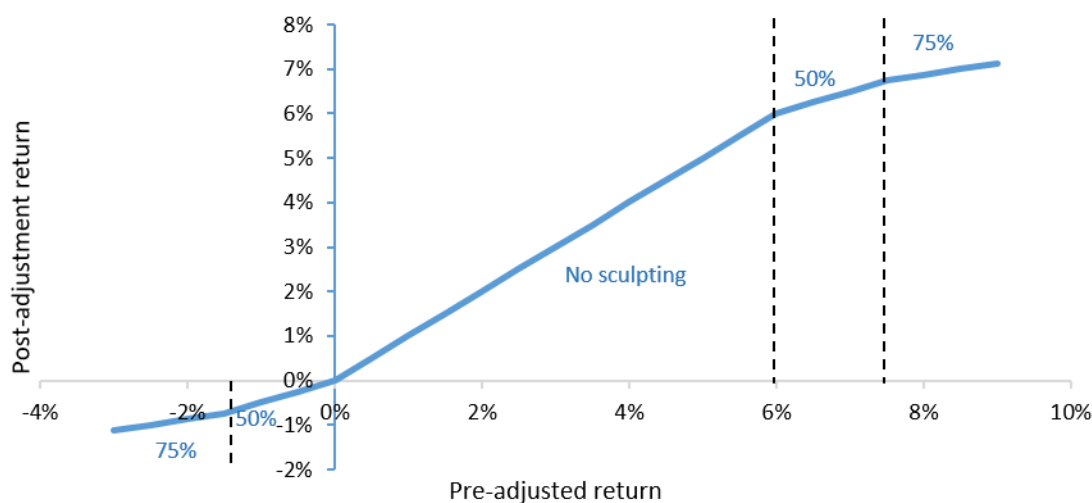
Sculpted sharing would adjust individual companies' RoRE when it deviates from a predetermined collar.

The sharing factor would apply to over and underspend. This would equally protect consumers from upside return risk as it protects companies from downside risk.

Unlike anchoring, it would not provide a complete backstop to a high/low sector average return. Sculpted sharing would result in companies sharing more of their outperformance with consumers, the more they outperform above the threshold (or conversely, sharing more of their underperformance, the more they underperform below a threshold).

Figure 6 below illustrates the adjustment that would be made to RoRE for various levels of outperformance. The X axis indicates companies' RoRE ahead of any adjustment, and the Y axis indicates the level of RoRE after sculpted sharing is applied. The example assumes a base cost of equity of 3% as a starting point and adjustments starting at 6% (or 0% for underperformance), with more intense adjustments starting at a threshold of 7.5% (or -1.5% for underperformance).

**Figure 7: post 'sculpted sharing' returns as a function of return levels pre-adjustments<sup>133</sup>**



As seen in the figure above, when a company breaches the threshold of 6%, 50% of its performance above that point would be shared with consumers. When the level of return breaches the level of 7.5%, 75% of its performance above that point would be shared with consumers. For companies that perform below the threshold of 0%, 50% of its underperformance beyond that point would be shared with consumers. When the level of return breaches the threshold of -1.5%, 75% of its underperformance beyond that point would be shared with consumers.

#### Class 2: Sector average sculpting (SAS)

The SAS approach combines elements from both the sculpting approach and anchoring. Similar to the sculpted sharing option, SAS would adjust the returns of over-performing companies when a sector average threshold is breached. However, unlike anchoring, this approach would not bring the sector average back to the threshold, but would apply predetermined sculpting levels depending on the sector average.

Hence, a company's adjustment would still be dependent on its peers' performance. However, unlike anchoring, companies would have ex ante information on what sculpting levels they could face given different sector averages.

The benefit of this approach is that it would maintain marginal incentives at the sector level, as the sector average would not be capped. The consequence is that, similar to sculpted sharing, SAS cannot guarantee that a sector will not perform above a certain level.

Table 17 below presents an illustrative case of three different companies equal in size where returns are adjusted once the sector average breaches 6%. In this example, sculpting levels for sector averages between 6 to 9% are 50% (right column in the table) and are 75% for sector average returns above 9% (left column in the table).

<sup>133</sup> Using a base cost of equity of 3% and a 300bps symmetrical collar

**Table 17: illustrative example of sector average sculpting**

	Very high sector average	High sector average
Pre-adjusted returns	Company A: 16% Company B: 12% Company C: 5%	Company A: 11% Company B: 9% Company C: 4%
Average return	11%	8%
Sculpting level	75%	50%
Post adjustment sector average	7%	6.6%
Effect on individual companies		
Sculpting response function		

As seen above, the sculpting function slope is steeper in when the sector average is very high (purple line) in comparison to where the sculpting level moderately high (red line). We note a similar logic could be applied for an example where the sector average breaches the lower bound adjustment threshold. In that case, companies performing below that threshold would be adjusted upwards.



### Class 2: Anchoring

Anchoring would trigger an upward or downward adjustment to companies' RoRE based on the regulated asset value (RAV)-weighted average return across a sector.<sup>134</sup>

When the sector as a whole performs within a predetermined collar, the returns that individual companies would earn would reflect their performance against their own targets and allowances.

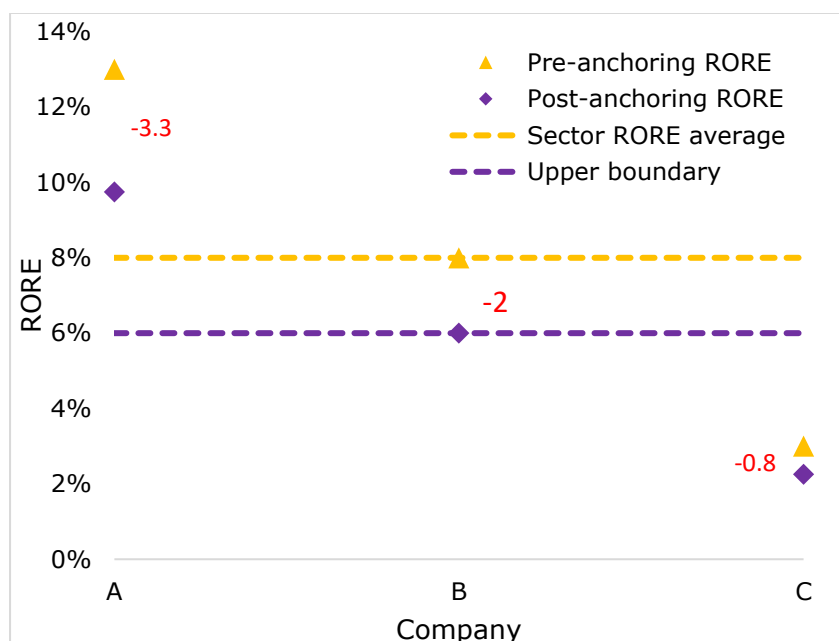
If the sector RoRE average falls outside the collar, we would make adjustments to the revenues of companies in the sector to refund consumers in proportion to their RAV.<sup>135</sup> This adjustment would result in the RAV-weighted sector average aligning with the upper or lower bounds of the collar.

There are a number of ways in which anchoring adjustments could be distributed across companies within a sector.

We propose a proportional adjustment approach as our preference, whereby adjustments would be made to all companies in a sector. The percentage of adjustment would be the same across all companies, however, the actual adjustment for individual companies would be proportionate to their pre-adjusted return. Hence, a company with a lower return would be subject to a smaller adjustment in percentage point terms.

This is illustrated at Figure 8, where we assume a sector with 3 companies and a 'collar' of 3% around a 3% base cost of equity. The sector weighted average RoRE turns out to be 8% (outperformance of 2 percentage points above the upper boundary). This requires a reduction by a quarter in each company's return.

**Figure 8: RoRE based proportional anchoring adjustment**



In this example, all companies are adjusted downwards by the percentage of the sector outperformance and this would lead to a reduction of one third to the returns for each

<sup>134</sup> For this section we use our proposed metric – RoRE. Nevertheless, anchoring could also be designed to be triggered based on outperformance of a sector relatively to its totex. The suitability of the two metrics is discussed in the main section on RAMs in this document.

<sup>135</sup> The adjustment is based on companies' regulatory equity relatively to each other. This equates to their relative RAV, as regulatory equity is RAV multiplied by a notional gearing rate (which is typically equal across companies within a sector).

company. We note a similar logic could be applied to an example where the sector average breaches the lower bound adjustment threshold. In that case, all companies within the sector would be adjusted upwards so the sector average would align with the lower bound threshold.

#### Discretionary adjustments

Under a discretionary adjustment mechanism, there would be a review of performance initiated by predetermined triggers. Those could be (but may not necessarily be limited to) when we observe that:

- returns are above or below a certain threshold;
- underspending/overspending of totex is beyond a certain threshold, or
- incentive rewards/penalties are beyond a certain level (e.g. as a % of RoRE or totex).

In our review, we might consider factors such as events beyond the control of a prudent management team. We may also evaluate whether management decisions at the time they were made were adequate. If we were to find that a company has not acted in an appropriate manner, we may seek to make adjustments to its revenues.

A discretionary adjustment mechanism could share similarities with Ofwat's substantial effect mechanism.<sup>136</sup> This mechanism allows Ofwat to consider adjusting price limits where there have been other changes in circumstances, the net present value of which are greater than a different, higher, materiality threshold of 20% of a company's turnover.

We are not assessing discretionary adjustment alongside the remaining options as we consider the implementation of discretionary adjustment could both increase uncertainty for companies, and could be challenging in terms of implementation and the burden it would put on companies and us as a regulator. We therefore consider that the option of a discretionary adjustment may not be an effective mechanism to guard against higher or lower returns than expected.

#### Assessment of Class 1 and Class 2 RAMs options

We have considered the following in our assessment of RAMs:

- Effectiveness – ability to mitigate the risk of higher-than-expected returns
- Effect on companies' risk profiles – e.g. effect on investors' perception of risks
- Impact on incentives – maintaining incentives on companies to outperform
- Impact on collaboration – e.g. on cross-sectoral and strategic issues
- Level of complexity and challenges in implementation

We qualitatively score the options against the status quo (no RAMs) using a scale of: Positive, Neutral, Negative. Where we consider there is a marginal positive or negative we have indicated this with +/-.

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<sup>136</sup> Refer to Ofwat's decision from 2014-15 for more details:  
[https://www.ofwat.gov.uk/wp-content/uploads/2014/02/pap\\_pos20140211tmssfe.pdf](https://www.ofwat.gov.uk/wp-content/uploads/2014/02/pap_pos20140211tmssfe.pdf)

**Table 18: Comparative assessment of options for return adjustment mechanisms for the gas distribution sector**

	<b>Class 1</b>	<b>Class 2</b>	
<b>Criteria</b>	<b>Sculpted sharing</b>	<b>Sector average sculpting</b>	<b>Anchoring</b>
<b>Effectiveness</b>	Positive: sculpting would make it more difficult for individual companies to out or underperform above/below certain levels, but cannot guarantee against sectoral outperformance.	Positive (-): would adjust companies only when the sector average performs above or falls below a predetermined threshold. However, it cannot guarantee that a certain level of sectoral return. Additionally, there is a lower prospect of an adjustment being triggered in comparison to individual company sculpting as there is a higher likelihood that an individual company would out or underperform the threshold rather than the sector as a whole.	Positive (+): anchoring would ensure that a sector average cannot exceed or fall below a predetermined level of return under any circumstances.
<b>Impact on incentives</b>	Negative (+): could reduce incentives on performance above a certain threshold as companies would need to share more of their outperformance. We believe that the scenario in which the thresholds would become a focal point (ie companies choose to defer outperformance to subsequent price controls) is not very likely as: (i) companies would need to expect that there would be enough 'headroom' for them to outperform in subsequent price controls until they breach the thresholds, and (ii) the gain of deferring potential outperformance is greater than the monetary value of time (taking into consideration discounting rates).	Neutral (-): given that only out or underperforming companies would be adjusted, there is a risk that if only a limited number of companies perform above the sector average, the sector average may become a focal point (but this risk is lower in comparison to individual company sculpting). At the same time, the fact that the adjustment also depends on a sector average would reduce to an extent the risk that the sculpting threshold would become a focal point, as companies cannot know where this average will turn out to be.	Neutral: adjustments to companies beyond a certain point could discourage companies to beat incentives. Conversely, the impact on incentives would be less severe because (i) well performing companies would share some of the clawback with the rest of the sector, (ii) anchoring would introduce a competitive dynamic in which companies would need to perform better than their peers to maximise their return – an average performer could face lower returns than it targeted because of high performing peers.
<b>Effect on companies' risk profiles</b>	Positive (-): the symmetrical nature of the mechanism and the complete certainty of when it would be	Neutral: The symmetrical features of anchoring would reduce risk as it would limit the range of possible outcomes. The	Neutral: The symmetrical features of anchoring would reduce risk as it would limit the range of possible outcomes. The mechanism is

	applied would reduce the range of outcomes and therefore would reduce companies' risk profiles.	mechanism is less predictable than sculpted sharing factor as the trigger of adjustment depends on other companies. However, it is more predictable than anchoring as there is more visibility of what the level of adjustment may be once the mechanism is being triggered	less predictable than sculpted sharing factor as the trigger of adjustment depends on other companies. However, it is more predictable than anchoring as there is more visibility of what the level of adjustment may be once the mechanism is being triggered.
<b>Impact on collaboration</b>	Neutral: companies' performance is independent of their peers and therefore there is no foreseeable impact on collaboration	Neutral (-): anchoring and sector average sculpting in theory could reduce incentives on within-sector collaboration as the more companies within a sector outperform, the higher the adjustment. Conversely, most collaboration we have observed so far relates to (i) consumer-funded innovation, in which knowledge sharing is mandated, (ii) business-as-usual collaboration we have observed mostly relates to safety standards and emergency response, and is not directly associated with companies' financial performance, and (iii) cross-sectoral whole system collaboration should not be impacted as anchoring is only applied within a sector.	
<b>Level of complexity &amp; challenges in implementation</b>	Negative (-): adjustments would depend on the sector average, but the apportioning of the adjustment would involve a simple calculation that can be applied relatively easily	Negative: would need to determine various parameters, that would change sculpting levels depending on the sector average. This may require multiple decisions to set parameters	Neutral (-): would add some complexity relative to the status quo, but calculation of post-adjusted returns is relatively straightforward

As seen in the assessment table, comparing the relative merits of the three options requires a trade-off. Options that score better on in effectiveness and maintaining incentives also have greater potential to impact companies' risk profiles and incentives on collaboration. However, in our view, those risks are outweighed by the potential benefit of helping to protecting consumers against much higher or lower returns, while not eroding incentives on outperformance.

On balance, our analysis indicates that anchoring may be preferable than the other options in both being more effective in addressing higher than expected returns at a sector level, and maintaining incentives on performance. While some of our stakeholders indicated that anchoring would reduce incentives on performance as outcomes may be uncertain, we believe this effect would be offset by the competitive dynamic that it would introduce. Companies that choose to reduce effort due to the possibility of being adjusted, may increase their risk of facing an adjustment as they may not 'keep up' with companies in the rest of the sector. We consider that for this reason, anchoring would maintain incentives on performance.

Anchoring variants: description and assessment

We have considered three variants of how anchoring adjustments could be applied:

- Absolute adjustment: when RoRE falls outside the collar, each company in a sector would be subject to the same level of adjustment in percentage point

terms regardless of individual companies' performance and whether they are within or above the collar.

- Proportional adjustment: adjustments to individual companies would be proportionate to their pre-adjusted return. Hence, a company with a lower return would be subject to a smaller adjustment in percentage point terms. Yet, the rate of adjustment will be the same across all companies.<sup>137</sup>
- Targeted proportional adjustment: only companies that perform outside the collar would be adjusted and this would be proportionate to their pre-adjusted return.

We have assessed these three variants in comparison<sup>138</sup> to each other in Table 19 and we provide an illustration of how they would be applied in Table 20.

**Table 19: Assessment of anchoring variants<sup>139</sup>**

	Absolute adjustment	Proportional adjustment	Targeted adjustment
Perceived fairness	Low – as the less well performing companies would be adjusted in absolute terms equally to the better performing ones, it might be viewed as if the low performing companies need to compensate for the high performing ones	Medium – low performing companies would still be adjusted, but less in absolute terms in comparison to high performing companies	High – low performing companies would not be adjusted. However, the adjustment of high performing companies would still depend on the relative performance of peers within the high performing group
Perceived riskiness to companies	High – for companies with low expected performance Low – for companies with high expected performance	Medium – for all companies as they would be subject to the same proportional adjustment	Low – for companies expected to perform within the threshold High – for companies expected to perform above the threshold
Impact on incentives	High – as the highest performing companies would share a high proportion of outperformance with their peers, this method may maintain a high degree of incentives on performance for high performing companies	Medium – highest performing companies bear more of the sector's adjustment than others, but would still share some of their outperformance with the other companies within the sector.	Low – since only companies that perform above the upper bound would be adjusted, there is a risk that a significant share of their outperformance would be clawed back. In some circumstances, this could lead to outcomes similar to a hard cap. This may in turn drive lower ambition in companies who prefer a reasonable and stable return.

<sup>137</sup> We note that the targeted adjustment variant could be viewed as equivalent to applying variable levels of sculpting only to outperforming companies. Using the example in Table 20, companies B and C would have been sculpted by 66% above the 6% threshold in order for the sector average to be reduced to 6%. Had companies A and B performed at higher levels, more steep levels of sculpting would have been needed to maintain a sector average of 6%.

<sup>138</sup> We do not use the same criteria as used in the assessment of the 3 RAMs options in Table 18. This is because we wish to better articulate the differences between the anchoring variants and for comparison purposes. As such, the scores of 'high' or 'low' are comparative between the options and cannot be compared against the status quo of no RAMs.

<sup>139</sup> The table is based on a case where a sector performs above a threshold. In a case where the sector performs below a threshold and is being adjusted upwards, the risks outlined in this table are of less relevance.

**Table 20: Anchoring variants illustration**

The example illustrates a case of a sector with 3 companies and a 'collar' of 3% around 3% RoRE. The sector weighted average RoRE equates to 8% (outperformance of 2 percentage points above the upper boundary)

Absolute adjustment	Proportional adjustment	Targeted proportional adjustment
All companies are adjusted downwards by 2 percentage points	All companies are adjusted downwards by the percentage of the sector outperformance. In this example, 1/4 cut to on the outperformance payments of each company	Only companies that perform above the upper boundary are adjusted proportionally to their outperformance until the sector average aligns with the upper boundary

The charts show the following data points:

Company	Pre-anchoring RORE (%)	Post-anchoring RORE (%)	Adjustment (%)
A	13	11	-2
B	8	6	-2
C	3	1	-2

Company	Pre-anchoring RORE (%)	Post-anchoring RORE (%)	Adjustment (%)
A	13	9.7	-3.3
B	8	6	-2
C	3	2.2	-0.8

Company	Pre-anchoring RORE (%)	Post-anchoring RORE (%)	Adjustment (%)
A	13	8.3	-4.7
B	8	6.7	-1.3
C	3	3	0

## Appendix 5 - Preliminary impact assessment of our proposals

In Appendix 5 of the Framework Decision<sup>140</sup>, we set out our framework for assessing the impacts of our individual proposals. We have used this framework to provide a preliminary impact assessment of our proposals. The assessment of individual proposals is integrated within the sections outlining and assessing the individual proposals for RIIO-2 in this document, and the associated documents on individual sectors. As part of the development of the individual proposals, we have considered the lessons learned in RIIO-1 in these areas.

In this appendix, we set out our preliminary view of the combined cross-sector impact of our RIIO-2 proposals in comparison to RIIO-1.

As discussed in Appendix 2, we have undertaken a draft impact assessment (IA) looking at the introduction of late competition into the gas and electricity distribution sectors (and the continuance of our arrangements to apply it in onshore electricity transmission). This is published alongside this consultation. This is a separate document to this preliminary impact assessment.

We are not consulting on proposals for the electricity distribution sector at this stage, which will be subject to a separate consultation process prior to the commencement of RIIO-ED2 in April 2023.

Subject to that consultation process, and to full consideration of all other relevant information, certain proposals we are currently consulting on (for the sectors whose price control begins in 2021) are capable, in principle, of application to RIIO-ED2.

As part of this assessment, we focus on the benefits and costs deriving from our key proposals in terms of:

- Consumer bills impact
- Quality of service
- Risk allocation

As part of our assessment we also look into the impact our proposals may have on regulated companies. This is because some of the impacts on consumers we have identified may be a result of absolute cost reductions or increases, whereas others may be a redistribution of costs from companies to consumers.

We note that this is a preliminary assessment, based on the information we currently have in support of our proposals. The nature of some of our proposals means that at this time they can only be assessed qualitatively. This may include where the anticipated impact may depend on financial or economic conditions at a future point in time, the composition and value of Business Plans (that we have not yet received), or the nature of behavioural response to incentives that at this time we cannot directly observe.

As part of the decision document, we will further develop our assessment taking into consideration stakeholder feedback and any further evidence we gather.

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<sup>140</sup>Found at [https://www.ofgem.gov.uk/system/files/docs/2018/07/riio-2\\_july\\_decision\\_document\\_final\\_300718.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/07/riio-2_july_decision_document_final_300718.pdf)

## Consumer bill impact

We seek to keep consumer bills as low as possible in both the long and short term while enabling the network companies to provide good quality services. We aim to achieve this through a better calibration of the risk-reward balance in RIIO-2. Some of the benefits to consumers are likely to derive from genuine cost reductions, and others may be a result of redistributing benefits from companies to consumers as a result of higher levels of benefits sharing or reduction in the financing cost borne by consumers. As part of assessing the potential consumer bill impact, we account for both. The potential impact on network companies is described later in this section.

### Impact on financing costs

#### Benefits

Reduced financing costs can directly translate into lower bills for consumers as the return investors earn on companies' regulatory asset value (RAV) would be lower than in RIIO-2 under our proposals (based on proposed methodology and current market data). Our view is that the low risk environment within which the network companies operate points towards a reduction in the allowed cost of equity for companies compared to RIIO-1. Alongside our proposals for the cost of debt, the cost of capital could be set at a lower level.

We estimate the cost saving to consumers associated with a lower cost of capital than in RIIO-1 to be worth approximately £6.5bn<sup>141</sup>, or roughly an average £30/year reduction on consumer bills. This is based on the application of our proposed methodology and working assumptions with current data.

#### Costs

Some stakeholders have argued that the introduction of proposed return adjustment mechanisms that link an individual company's return to the average performance of the sector may lead to increased uncertainty and this could impact on the cost of capital, leading to higher costs for consumers. We do not consider this to be the case because of: a) the low likelihood that those mechanisms will be triggered in RIIO-2 given our proposed thresholds and; b) the improved downside protection these mechanisms introduce.

On the move from RPI to CPIH indexation, we estimate that the move will increase cost during RIIO-2 but would be cost neutral over the long term.

#### Preliminary assessment

We anticipate our proposals on cost of capital to be net beneficial because the potential savings to consumers from bearing any lower cost of capital is likely to outweigh any uncertainty related risks. More details on the proposed methodology can be found in the Chapter 10 and the associated finance annex.

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<sup>141</sup> Over the RIIO-2 periods in real 21/22 CPIH prices, discounted at 3.5% (per HM Treasury [Green Book](#) guidance) to the 21/22 financial year. The current consultation does not apply to ED2, but represents our latest thinking on the cost of capital for networks. A full consultation for the ED2 price control will follow, including on whether the approach applies and whether ED2 may warrant a departure. It will present our best available evidence at that time. Approximately three-quarters of the savings presented are attributed to GT2, ET2 and GD2 which begin in 2021, but the total figure includes ED2 for completeness in assessing the potential impact



## **Impact of information asymmetry**

### Benefits

Forecasting assumptions can prove to be wrong in an ex ante price control. We believe that information asymmetry increases the probability that these errors will not be symmetric, but are more likely to be in the network companies' favour. For example, uncertainty around the need and scope of an investment often results in underspending of totex allowances. Hence, information asymmetry may lead us to set allowances at higher levels than we would have otherwise set had we more and better quality information available to us. Accordingly, some of the companies' underspend may be due to factors other than cost efficiency and result in increased consumer bills.

Our preliminary assessment indicates that, in comparison to RIIO-1, our proposals for a Business Plan incentive and the application of blended sharing factors have increased prospects of: a) revealing better quality information; and b) mitigating the risk that companies may benefit from their information advantage.<sup>142</sup>

We believe those proposals would allow us to set more stretching totex allowances and output targets than we could otherwise. In addition, if companies choose not to engage with the proposed mechanisms, by not providing efficient cost forecasts or good quality plans, consumers could be compensated through penalties or better protected through lower sharing factors. We believe our proposal would contribute to a better redistribution of earnings between consumers and companies due to better quality, more accurate information potentially being revealed.

### Costs

The more detailed process of assessing Business Plans and totex submissions using the proposed Business Plan incentive and blended sharing factor may introduce an additional administrative burden both on Ofgem and companies. Additionally, consumers may bear a higher share of any overspend, lowering the share of a benefit a company received from underspending, will correspond to consumers funding a higher share of overspending.

### Preliminary assessment

We consider the benefits of setting more stretching targets and adjusting sharing factors as a function of information asymmetry outweigh the potential costs of the additional administrative burden. Furthermore, given companies' historical performance, we anticipate companies are more likely to under rather than over spend. More details can be found in Chapter 9.

## **Linking incentives closer to their cost and risk of delivery**

Incentives are important in motivating companies to deliver better outputs and seek cost efficiencies. In setting reward levels, we should ensure that on the one hand, incentives are sufficient to justify companies taking the risk and effort necessary to achieve improvement. On the other hand, if rewards are set too high consumers are less able to benefit from those improvements as the difference between the benefit generated and costs may be small.

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<sup>142</sup> For example, the blended sharing factor approach on totex would reduce sharing factors where there is no independent benchmark for a company's proposed cost or where a company does not provide sufficient evidence or protections against uncertainty.

### Benefits

Our experience with systematic outperformance in RIIO-1 indicates that reducing incentives may yield benefits for consumers. Additionally, if delivery risks were higher, we would have expected some companies not to be able to meet their output targets or to underspend their totex. This has not been the case. Establishing a better link between the level of incentives and the cost of delivery could potentially be achieved by lowering the power of incentives in some areas to better reflect the lower risks companies are exposed to in delivering against incentives.

On totex, we propose lower sharing factors than in RIIO-1. This would ensure that more of each company's outperformance would be shared with consumers. On Output Delivery Incentives (ODIs), we propose to roll out competed ODIs, where appropriate, to drive down the cost of achieving outputs. More details on our proposals on ODIs are set out in the sector specific annexes.

### Costs

The proposed change in sharing totex under or out performance may reduce incentives on companies to find cost efficiencies. At the lower end of our proposed range for sharing factors (15%), our assessment indicates that from a pure Net Present Value (NPV) perspective, companies still have incentive to underspend their allowance. At the upper end of our proposed range (50%), we have not seen evidence that sharing factors above 50% systemically increase companies' effort to find cost efficiencies.

### Preliminary assessment

We estimate that the benefit to consumers from lowering the cost of delivering and service quality improvements outweighs the potential risk that companies may reduce efforts to find cost efficiencies or improve services. More details can be found in the simplifying Business Plan assessment and reflecting what consumers want and value from networks chapters.

## **Driving down costs through extended competition**

### Benefits

Certain models of competition could also lead to reductions in both the capital and operational delivery costs of projects, and the underlying cost of capital used to fund those projects. For example, the cost of delivery could be reduced by efficiencies gained through innovation, a more holistic 'whole-life' procurement approach, or by enabling a wider pool of contractors and manufacturers to participate. On the financing side, we would expect a competition to identify the best value equity and debt providers, as well as an efficient project-specific financing structure.

### Costs

Separate to this preliminary assessment, we have issued a draft IA on our approach to late competition. This is an update of an IA we previously published to support our approach to competition. Our draft IA on late competition shows that in order for competition to deliver benefits in those sectors, it would need to result in savings of more than 4.2-10.8 per cent of total project costs, depending on the number and size of projects subject to competition. The 10.8 per cent cost figure results from only applying late competition to one £100m project during RIIO-2. Under scenarios where more than one project is subject to competition, or where projects of £500m or above are subject to competition, the costs reduce to 4-5 per cent of the value of projects involved.

### Preliminary assessment

Given our experience of delivering competition in offshore electricity transmission, and our most recent impact assessment on the Special Purpose Vehicle model and Competition Proxy Model in electricity transmission, we consider that extending competition to all sectors is likely to result in savings that would exceed the costs. We are consulting on this draft IA. More details can be found in Chapter 8.

## **Enabling the energy system transition**

We address energy system transition as part of our proposals on enabling whole system solutions and driving innovation and efficiency.

### Benefit

**Innovation:** We estimate there may be benefit in reducing consumers' direct contributions to innovation projects. This reflects our view that companies should increasingly undertake certain types of innovation through their business as usual activities and base revenues, rather than receiving additional funding through an innovation stimulus. We also consider that our proposals for RIIO-2 would better direct innovation funding toward strategic innovation challenges within networks and system operation where the potential benefits to consumers may be higher.

The proposal to increase third party involvement in network innovation should also increase the scope of innovative ideas and has the potential to increase benefits to consumers. We also expect increased coordination of network innovation with other public sector innovation funding to ensure that energy industry-wide innovation projects are more coherent, reducing the risk of fragmentation and funding projects with misaligned aims.

**Whole system solutions:** We consider that the proposed enhanced focus on the role network companies can play in enabling whole system, together with our proposals to address potential barriers to this, could enable better optimisation of whole system solutions. In doing so, we consider there is potential for a reduction in the cost of solutions to network and system issues.

### Costs

**Innovation:** Any potential reduction in innovation funding, for example if we decided not to retain an innovation allowance, could risk reducing companies' willingness to engage in innovation projects and as a consequence may increase the risk that potential long-term cost reduction projects would not be commissioned. There could also be implementation costs for Ofgem, network companies and third parties as a result of setting up new governance arrangements and pursuing regulatory reform in order to seek to coordinate network innovation more with other public sector funders and increase third party involvement.

**Whole system:** If not carefully defined, additional funding and incentive arrangements may not represent good value for money. We will assess the value of proposals at the time we decide whether it is appropriate to allocate such funding.

### Preliminary assessment

We consider that our proposal to retain and better target network innovation would be sufficient to facilitate innovation that would not otherwise be carried out. This would target innovation towards the greatest research and development challenges facing the

energy sectors, where the potential benefits to consumers may be higher. We will assess the potential impacts of our policy on enabling whole system solutions as it is developed.

Further details can be found in the Chapters 5 and 8.

## **Impact on quality of service**

There is a strong interplay between cost to consumers and quality of service. For example, a higher quality of service could cost consumers more. Conversely, ensuring protections on quality of service through ODIs and other measures could incentivise companies better and avoid cost increases in the long-term.

Our framework includes licence conditions, that ensure a minimum level of quality that consumers can expect. It also incentivises companies to invest when they: a) can deliver cost-effectively a better quality of service based on consumers' preferences; and b) reduce long term cost. These may increase costs in the short term, but are expected to generate benefits in the long term.

### **Enhanced stakeholder engagement**

#### Benefits

Enhanced stakeholder engagement could help ensure that outputs delivered by companies better align with what consumers value. In doing so, this could encourage companies to improve the quality of service where desirable.

#### Costs

Where improvements in service delivery require additional funding, this may increase costs in comparison to RIIO-1. The establishment and operation of the different panels also involves some additional costs.

#### Preliminary assessment

While enhanced stakeholder engagement requirements may increase the cost associated with administering the stakeholder engagement process, they may also put more scrutiny on companies' cost efficient delivery. Furthermore, some increase in cost may be beneficial if it delivers improvements in areas that consumers value. More details can be found in Chapter 3.

### **Asset resilience**

Our current proposals on resilience consider a variety of aspects, ranging from asset resilience, physical site security, workforce resilience, and cyber resilience. On one hand, these can prevent higher costs in the future, but may involve cost increases over the short term.

#### Benefits

Our proposals on asset resilience could ensure that network companies' asset health is maintained in a cost effective manner over the long-term. In doing so it could reduce both the risk of asset failure (including interruptions to services and other wider damages such as to public safety and environment) and inefficient expenditure in the future.

We consider our proposals on the Network Asset Risk Metric (NARM) represent an improvement over our existing Network Output Measures (NOMs). We see the main benefit being our ability to monetise the risk associated with asset health and link cost

allowances to it. This could also better reflect the long term detriment poor asset management may have on consumers and help maintain asset risk at an efficient level.

### Costs

Introducing the NARM could require some implementation and administrative costs to both companies and the regulator. In the long run, this could reduce the regulatory burden once implemented.

### Preliminary assessment

Our analysis indicates that the potential long term benefit of introducing improved resilience measures is likely to exceed the potential costs. Further details can be found in Chapter 6.

## **Other impacts**

### **Risk allocation**

Our proposals for RIIO-2 look to achieve a better balance of risk allocation between network companies and consumers. This includes greater use of uncertainty mechanisms (including indexation), price control deliverables, and the blended sharing factor. By nature, the impact of this uncertainty means that it could either be adverse or beneficial to consumers.

### Benefits

As indicated above, it is not possible to anticipate precisely how costs may deviate from forecasted assumptions. Our current proposals aim to allocate risk to the party that is best able to manage it. Where this is not the network company, we are removing this risk from them. This could contribute towards reducing companies' cost of capital. These uncertainty mechanisms and price control deliverables may also be beneficial to avoid consumers funding anticipated investments that turn out not to be required.

### Costs

Including too many uncertainty mechanisms could add complexity and cost to the price control framework. We also note that introducing uncertainty mechanism in areas where companies are better able to manage uncertainty and associated risk could reduce incentives on companies to manage risks effectively. Nevertheless, we maintain that companies should manage risks effectively where they are able to, even if there is an uncertainty mechanism in place.

### Preliminary assessment

Under RIIO-1, the indexation of real price effects (RPEs) could have better protected consumers from inaccurate forecasts made at the start of the price control period. However, we acknowledge that it could have also costed them more under other circumstances (where assumptions had moved in the opposite direction).

On balance, we think indexing RPEs could generate savings by removing unnecessary forecasting risk from both consumers and companies. In other areas, uncertainty mechanisms and indexation will be developed in further detail following company Business Plans submissions. Forecasting potential benefits is therefore uncertain at this stage.

In deciding whether to introduce uncertainty mechanisms we will seek to balance between the benefits of efficient risk allocation and potential administrative burdens. For

example, by introducing materiality thresholds where necessary. We also consider that shifting risks that companies are not well placed to manage could reduce the risk levels companies are facing, making them financeable at a lower cost. More details can be found in Chapter 7.

#### Cost distribution

Our principal objective is to protect the interests of existing and future consumers. Supporting and protecting consumers in vulnerable situations is also a key priority for Ofgem. We will consider the interests of individuals who are disabled or chronically sick, of pensionable age, with low incomes, or residing in rural areas.

At times, this may involve imposing higher costs on all existing consumers to benefit a particular subset of consumers, such as those in vulnerable situations. Similarly, we may have to consider imposing higher costs on existing consumers for the benefit of future consumers, such as when we approve cases for anticipatory investment or provide allowances for innovation spending.

Our intention in these cases is to only proceed where we think the costs associated with the policies are justified by the potential benefit that will be derived and the extent to which it is consistent with our duties.

The proposals on those areas are specific to the different sectors and are assessed as part of the sector specific annexes.

#### **Impact on companies**

##### Lower returns combined with lower risks and better protection mechanisms

We anticipate our proposal on RIIO-2 would reduce companies' expected returns. This would be mainly due to a combination of our proposals to reduce the cost of capital and totex sharing factors.

At the same time, we believe our proposal to further consider the introduction of a cashflow floor has the added benefit of strengthening the ring-fence, if appropriately structured. It also has the potential benefit of allowing us to be less constrained in setting the cost of equity.

Overall, we assess that companies should be able to both raise sufficient capital and debt to maintain efficient operation.

##### Better protection against inherent uncertainty

Greater use of indexation and appropriate uncertainty mechanisms could reduce companies' exposure to risks outside of their control. Furthermore, potential return adjustment mechanisms could protect companies from downside risks that cannot be anticipated at the outset of the price control.

##### Increased exposure to competitive pressures

A number of our proposals aim to introduce a competitive dynamic to the price control:

- Competitive ODIs
- Return adjustment mechanisms (anchoring and sector average sculpting)
- Greater use of competition

A greater use of competition and more relative performance metrics should help to drive down costs. However, those proposals could increase the levels of uncertainty companies may face in certain areas. Nevertheless, even with those proposals in place, we consider

network companies to be significantly lower risk than companies in non-regulated markets. Companies' return on historical investment is guaranteed through their RAV and is 'shielded' from demand risks.

#### Key uncertainties in developing our preliminary assessment of impacts

In developing our preliminary assessment in different areas, we have taken into consideration the following uncertainties regarding the scale and scope of potential impacts:

- Uncertainties related to our evaluation of RIIO-1: the RIIO-1 price control is still ongoing and the performance of companies against it could change between the time we estimate impacts and the conclusion of RIIO-1. This is an inherent uncertainty as a result of the need to design RIIO-2 ahead of completion of the existing price controls. We mitigate this uncertainty by using the best information available to us at this time. We will update our assessment in response to consultation and further developments.
- Uncertainties related to changes in circumstance between now and the commencement of RIIO-2: this relates mainly to areas where we set parameters. We mitigate this uncertainty, where possible, by designing methodologies rather than setting parameters at this stage. This could allow us flexibility to update our assessment in the future if needed.
- Uncertainties related to companies' response to the changes in incentives structure and levels: we aim to develop incentives which seek a good balance between encouraging the right behaviours, but doing so in a cost effective manner. In trying to achieve this balance, we face the uncertainty related to the effort companies may invest in meeting and exceeding incentive targets. Our assessment of incentives' effectiveness is based on the evaluation of incremental changes to incentives from one price control period to another. Ahead of our sector specific methodology decision in spring, we plan to further engage with academics and wider stakeholders to understand the implication the proposed changes may have on company behaviour. We would welcome any evidence stakeholders could provide on the effect of our incentives on the effort companies invest, including their cost effectiveness.

#### **Preliminary impact assessment questions**

CSQ99. What are your views on the approach we are proposing for assessing impact of our RIIO-2 proposals?

CSQ100. What are your views on the assumptions we have made in our assessment to date?

CSQ101. What are your views on the uncertainties we have identified for the purpose of this assessment?

CSQ102. What additional evidence should we consider as part of our ongoing assessment?

We seek views on our preliminary assessment with respect to:

- The approach for assessing impact
- Assumptions we have made in our assessment to date
- Capturing of uncertainties within the assessment

- Additional evidence we could consider as part of our ongoing assessment



## Appendix 6 – Consultation questions

The consultation questions are divided into categories depending on whether they are put forward in this document or one of the annexes.

In this document:

- CSQ: Cross sector questions
- FQ: Finance question (reproduced from the finance annex)

In an annex:

- FQ: Finance question
- ESOQ: Electricity system operator annex questions
- ETQ: Electricity transmission annex questions
- GDQ: Gas distribution annex questions
- GTQ: Gas transmission annex questions

### Cross-sector questions

#### Output categories questions

CSQ1. Do you have any view on our proposed approach for considering the extent to which a successful appeal has consequences, if any, on other components of the price control?

CSQ2. Do you agree with our proposed three new output categories?

CSQ3. Are there any other outcomes currently not captured within the three output categories which we should consider including?

CSQ4. Do you agree with our proposed overarching framework for licence obligations, price control deliverables and output delivery incentives?

CSQ5. Do you agree with our proposals to introduce dynamic and relative incentives, where appropriate? Are there any additional considerations not captured in our proposed framework which you think we should take into account?

CSQ6. Do you agree with our proposals to allow network operators to propose bespoke outputs, in collaboration with their User Groups/ Customer Challenge Groups?

CSQ7. When assessing proposals for bespoke financial ODIs, are there any additional considerations not captured which we should be taking into account?

#### Enabling whole system solutions questions

CSQ8. Do you feel we have defined the problem correctly?

CSQ9. What views do you have on our proposed approach to adopt a narrow focus for whole systems in the RIIO-2 price control, as set out above?

CSQ10. Where might there be benefits through adopting a broader scope for some mechanisms? Please provide evidence.

CSQ11. Do you have reasons and evidence to support or reject any of the possible mechanisms outlined in this chapter? Do you have views on how they should be designed to protect the interests of consumers?

CSQ12. Which of the possible mechanisms we have outlined above could pose regulatory risk, such as additionality payments or incentivising the wrong behaviour?

CSQ13. Are there obstacles to transferring revenues between networks that disincentivise those networks from using a coordinated solution (please give details and suggest any changes or solutions)?

CSQ14. Can you recommend approaches that would better balance financial incentives between networks to enable whole system solutions?

CSQ15. Are there other mechanisms that we have not identified that we should consider (please give details)?

CSQ16. Are there any additional framework-level whole system barriers or unlocked benefits, and if so, any price control mechanisms to address these?

CSQ17. Are there any sector specific whole system barriers or unlocked benefits, and if so, any sector specific price control mechanisms to address these?

CSQ18. Which of the proposed mechanisms would be most suitable in circumstances where a broader definition of whole system is likely to deliver benefits to network consumers?

#### **Asset resilience questions**

CSQ19. Do you agree with our proposals to use monetised risk as the primary basis for network companies to justify their investment proposals for their asset management activities?

CSQ20. Do you agree with our proposals to define outputs for all sectors using a relative measure of risk?

CSQ21. Do you agree with our proposals for defining outputs using a long-term measure of the monetised risk benefit delivered through companies' investments?

CSQ22. Do you agree with our proposed approach to setting allowances and outputs?

CSQ23. Do you have views on the proposed options for the funding of work programme spanning across price control periods?

CSQ24. Do you have any views on the options and proposals for dealing with deviation of delivery from output targets?

CSQ25. Do you have any views on the interaction of the NARM mechanism with other funding mechanisms?

CSQ26. Do you have any views on ring-fencing of certain projects and activities with separate funding and PCDs? Do you have any views on the type of project or activity that might be ring-fenced for these purposes?

#### **Workforce resilience question**

CSQ27. Where companies include a sustainable workforce strategy as part of their Business Plans, what measures do you think could be established to hold companies to account for delivering these plans, without distorting optimal resourcing decisions?

#### **Physical security questions**

CSQ28. Do you agree with maintaining the existing scope of costs that fall under Physical Security, ie costs associated with the PSUP works mandated by government? Please explain your reasons and suggest alternative definitions you believe should be considered.

CSQ29. Do you agree with our proposed approach of ex ante allowances for PSUP works mandated by government? Please explain your reasons and suggest alternative approaches you believe should be considered.

CSQ30. Do you agree with our proposal to include a reopener mechanism to deal with costs associated with changes in investment required due to government-mandated changes to the PSUP?

CSQ31. We would also welcome views on the frequency that is required for any reopener, e.g. should there be one window for applications during RIIO-2 and, if so, when?

#### **Cyber resilience questions**

CSQ32. Do you agree with the scope of costs that are proposed to fall under cyber resilience, i.e. costs for cyber resilience which are (1) incurred as a direct result of

the introduction of the NIS Regulations, and (2) above 'business-as-usual' activities? Please explain your reasons and suggest further or alternative costs you believe should be considered.

CSQ33. Do you agree with our proposed approach of ex ante 'use-it or lose-it' allowances? Please explain your reasons and suggest alternative approaches you believe should be considered.

CSQ34. Do you agree with our proposal to include a re-opener mechanism for cyber resilience costs? Please also provide your views on the design of the re-opener mechanism.

#### **Real price effects questions**

CSQ35. Do you have any views on our proposed factors to consider in deciding on appropriate input price indices? Do you have any evidence justifying the need for RPEs and any initial views on appropriate price indices?

CSQ36. Do you agree with our initial views to retain notional cost structures in RIIO-2, where this is an option?

CSQ37. Do you agree with our initial views to update allowances for RPEs annually and to include a forecast of RPEs in allowances? Do you have any other comments on the implementation of RPE indexation?

#### **Ongoing efficiency questions**

CSQ38. Do you agree with our proposal to use the EU KLEMS dataset to assess UK productivity trends? What other sources of evidence could we use?

#### **Managing the risk of asset stranding questions**

CSQ39. Do you think there is a need for a utilisation incentive at the sectoral level? If so, how do you think the incentive would operate coherently with the proposed RIIO-2 price control framework for that sector?

CSQ40. Do you have any views on our direction of travel with regard to anticipatory investment?

CSQ41. What type of projects may be appropriate for a risk-sharing approach?

CSQ42. How can we best facilitate risk-sharing approaches for high-value anticipatory investments?

CSQ43. How can we guard against network companies proposing risk-sharing arrangements for project they may have undertaken as business as usual?

#### **Innovation questions**

CSQ44. Do you agree with our proposals to encourage more innovation as BAU?

CSQ45. Do you agree with our proposals to remove the IRM for RIIO-2?

CSQ46. Do you agree with our proposals to introduce a new network innovation funding pot, in place of the Network Innovation Competition, that will have a sharper focus on strategic energy system transition challenges?

CSQ47. Do you have any views on our proposals for raising innovation funds?

CSQ48. Do you think there is a continued need for the NIA within RIIO-2? In consultation responses, we would welcome information about what projects NIA may be used to fund, why these could not be funded through totex allowances and what the benefits of these projects would be.

CSQ49. If we were to retain the NIA, what measures could be introduced to better track the benefits delivered?

CSQ50. Do you agree with our proposals for electricity distribution companies prior to the commencement of RIIO-ED2?

#### **Competition questions**

CSQ51. Have we set out an appropriate set of models for both late and early competition to explore further?

CSQ52. Do you agree with the proposed criteria we have set out for assessing the suitability of late competition models? Would you suggest any other criteria, and if so, why?

CSQ53. Do you have any views on the costs and benefits we have used for our draft impact assessment on late competition?

CSQ54. Are there any considerations for a specific sector we should include in our IA?

CSQ55. What are your views on the potential issues we have raised in relation to early competition? How would you propose mitigating any issues and why? Are there additional issues you would raise?

CSQ56. Are there other potential drawbacks of early competition?

CSQ57. Do you consider that there are any existing examples of early competition (including international examples or examples from other sectors) which demonstrate models of early competition that could generate consumer benefit in the GB context?

CSQ58. What are your views on the advantages and disadvantages of the high-level approaches to early competition outlined? How would you recommend mitigating any disadvantages?

CSQ59. Do you have any views on the potential criteria for identifying projects for early competition discussed above? Would you suggest any other criteria, and if so, why?

CSQ60. Do you agree with the criteria we have set out for assessing who should run competitions? Based on these criteria, which institution do you consider is best placed to run early and late competitions?

CSQ61. Do you agree with how we have described native competition? Do you agree we should explore the proposals described above to enhance the use of native competition? Are there any other aspects we should consider?

CSQ62. How do you think competition undertaken by network companies should be incentivised? Is the use of totex the best approach? Will this ensure a level playing field between network and non-network solutions including the deployment of flexibility services?

CSQ63. What views do you have on an approach where totex allowances would be based on costs revealed through competition, with a margin or fee for the competition-running entity?

CSQ64. Do you think the ESO could have a role to play in facilitating competition in the gas sectors?

#### **Business Plan and totex incentives questions**

CSQ65. What are your views on our proposed approach to establishing a Business Plan incentive?

CSQ66. Under the blended sharing factor approach, should the scope of stage 2 evaluation of cost assessment be based on the entire totex or only on cost items that we consider we can baseline with high confidence?

CSQ67. What should be the method for categorising cost forecast as High, Medium or Low? Are the indicative boundaries of 1.0 (High to Medium) and 1.04 (Medium to Low) appropriate?

CSQ68. What should be the range for the Business Plan reward/penalty? Is the range of  $\pm 2\%$  of totex equivalent appropriate for incentivising high quality and ambitious Business Plan submissions (e.g. Value or Good Value)?

CSQ69. Do you agree with our assessment of the IQI? (If not please provide your reasons). Do you agree with our proposal to remove the IQI?

CSQ70. Do you have views on the effectiveness of the blended sharing factors approach and in particular the incentive it provides on companies to submit more rigorous totex submissions?

CSQ71. Do you agree with our assessment of the blended sharing factor in comparison to the Ofwat cost sharing mechanism? If not, please provide your reasons.

CSQ72. Considering the blended sharing factor, what are your views on the factors (e.g. predictability, ability to effectively deal with uncertainty) or evidence that could be used to distinguish between costs that can be baselined with high confidence and other costs?

CSQ73. Do you have any views on the level of cost disaggregation we should apply to calculate the blended sharing factors approach on (regulatory reporting pack level or another level)?

CSQ74. Do you have any views on whether the proposed Business Plan incentive coupled with the blended sharing factor will drive the right behaviours?

CSQ75. What views do you have on our assessment of the sharing factor ranges?

CSQ76. Are there any other factors that you think we should take into account in the design of sharing factors?

CSQ77. Do you have any evidence on the scope for productivity improvements in the different sectors?

CSQ78. Do you have views on whether adjustments to sharing factor levels after the price control is set are desirable or necessary?

CSQ79. Under which circumstance do you consider such adjustments should take place?

CSQ80. When do you consider an adjusted sharing factor should be calculated?

#### **Ensuring fair returns questions**

CSQ81. Do you agree with our comparative assessment of RAMs set out in Table 18 in Appendix 4?

CSQ82. Do you agree with our proposal not to give further consideration to using discretionary adjustments?

CSQ83. Do you agree with our proposal to introduce an individual performance-based adjustment approach (Class 1) for the transmission sectors?

CSQ84. Do you agree with our proposal to introduce a sector average-based adjustment approach (Class 2) for the GD sector?

CSQ85. Do you agree with our proposal we should not adjust companies downward if they perform below their base cost of equity or upwards if they perform above their base cost of equity?

CSQ86. Would a return adjustment threshold of  $\pm 300$ bps RoRE achieve a good balance between providing scope for companies to outperform and ensuring return levels are fair?

CSQ87. What are your views on the proposed use of RoRE as a return adjustment metric? Would it be suitable for the gas and electricity transmission sectors and the gas distribution sector?

CSQ88. Should we include financial performance within the scope of return adjustments? If not, what is the rationale for excluding financial performance?

CSQ89. Should we implement adjustments through a 'true-up' as part of the annual iteration process or at the end of the price control as part of the close-out process?

#### **RIIO-2 Achieving a reasonable balance questions**

CSQ90. Do you agree with our assessment of the measures we have identified to make the price control more accurate?

CSQ91. Are there other measures we should take to improve the accuracy of the price control?

CSQ92. Are there other steps we could take to simplify the price controls, without significantly affecting the accuracy of the control?

CSQ93. Do you agree with our consideration of the risks facing these companies? Do you think the measures we are proposing will mitigate these risks? Does the expected level of return indicated by our proposals reflect these risks?

CSQ94. Have we achieved a reasonable balance with our proposals in seeking to achieve an accurate price control with return adjustment mechanisms only being used as a failsafe? Should we instead have a simpler price control and put more reliance on return adjustment mechanisms?

CSQ95. Have we achieved a reasonable balance in our proposals in considering return adjustment mechanisms alongside the expected-allowed return wedge? Should we instead only rely on one mechanism? What additional value would this bring?

CSQ96. Have we got the right focus on the areas that are of most value to consumers?

CSQ97. Are we proposing a methodology that allows us to achieve a reasonable balance between the interests of different consumer groups, including between the generality of consumer and those groups that are poorly served/most vulnerable? Are we missing any group?

CSQ98. Are we proposing a methodology that allows us to achieve a reasonable balance between the interests of existing and future consumers?

#### **Preliminary impact assessment questions**

CSQ99. What are your views on the approach we are proposing for assessing impact of our RIIO-2 proposals?

CSQ100. What are your views on the assumptions we have made in our assessment to date

CSQ101. What are your views on the uncertainties we have identified for the purpose of this assessment

CSQ102. What additional evidence should we consider as part of our ongoing assessment?

## **Finance questions**

### **Cost of debt questions**

FQ1. Do you support our proposal to retain full indexation as the methodology for setting cost of debt allowances?

FQ2. Do you agree with our proposal to not share debt out-or-under performance within each year?

FQ3. Do you have any views on the next steps outlined in Finance annex paragraphs 2.22 to 2.25 for assessing the appropriateness of expected cost of debt allowances for full indexation?

FQ4. Do you have a preference, or any relevant evidence, regarding the options for deflating the nominal iBoxx as discussed in Finance annex paragraph 2.14? Are there other options that you think we should consider?

### **Risk-free rate questions**

FQ5. Do you agree with our proposal to index the cost of equity to the risk-free rate only (the first option presented in the March consultation)?

FQ6. Do you agree with using the 20-year real zero coupon gilt rate (Bank of England database series IUDLRZC) for the risk-free rate?

FQ7. Do you agree with using the October month average of the Bank of England database series IUDLRZC to set the risk-free rate ahead of each financial year?

FQ8. Do you agree with our proposal to derive CPIH real from RPI-linked gilts by adding an expected RPI-CPIH wedge?

### **TMR questions**

FQ9. Do you have any views on our assessment of the issues stakeholders raised with us regarding outturn inflation, expected inflation, and the calculation of arithmetic uplift (from geometric returns)?

FQ10. Do you have any views on our interpretation of the UKRN Study regarding the TMR of 6-7% in CPI terms and our 6.25% to 6.75% CPIH real working assumption range based on the range of evidence?

FQ11. Do you have any views on our reconciliation of the UKRN Study to previous advice received on TMR as outlined at Finance annex appendix 2?

### **Equity beta questions**

FQ12. Do you have any views on our assessment of the issues that stakeholders raised regarding beta estimation, including the consideration of: all UK outturn data, different data frequencies, long-run sample periods, advanced econometric techniques, de-gearing and re-gearing, and the focus on UK companies?

FQ13. What is your view on Dr Robertson's report?

FQ14. What is your view on Indepen's report?

FQ15. What is your view of the proposed Ofgem approach with respect to beta?

Cross-checking the CAPM-implied cost of equity questions

FQ16. Do you agree with our proposal to cross-check CAPM in this way?

FQ17. Do you agree that the cross-checks support the CAPM-implied range and lend support that the range can be narrowed to 4-5% on a CPIH basis?

FQ18. Are there other cross-checks that we should consider? If so, do you have a proposed approach?

### **Expected and allowed return questions**

FQ19. Do you agree with our proposal to distinguish between allowed returns and expected returns as proposed in Step 3?

FQ20. Does Finance annex appendix 4 accurately capture the reported outperformance of price controls?

FQ21. Is there any other outperformance information that we should consider? We welcome information from stakeholders in light of any gaps or issues with the reported outperformance as per Finance annex appendix 4.

### **Financeability questions**

FQ22. What is your view on our proposed approach to assessing financeability? How should Ofgem approach quantitative and qualitative aspects of the financeability assessment? In your view, what are the relevant quantitative and qualitative aspects?

FQ23. Do you agree with the possible measures companies could take for addressing financeability? Are there any additional measures we should consider?

FQ24. Do you agree with the objectives and principles set out for the design of a cashflow floor?

FQ25. Do you support our inclusion of and focus on Variant 3 of the cashflow floor as most likely to meet the main objectives?

### **Corporation tax questions**

FQ26. Do you support our proposal that companies should seek to obtain the "Fair Tax Mark" certification?

FQ27. Is there another method to secure tax legitimacy other than the "Fair Tax Mark" certification? Could we build upon the Finance Acts (2016 and 2009) with regards to the requirement for companies to publish a tax strategy and appoint a Senior Accounting Officer?

FQ28. For Option A, how should a tax re-opener mechanism be triggered? Is there a materiality threshold that we should use when considering the difference between allowances and taxes actually paid to HMRC? If so – what might this be?

### **RAV indexation (CPIH) questions**

FQ29. What is your view on our proposal for an immediate switch to CPIH from the beginning of RIIO-2 for the purposes of RAV indexation and calculation of allowed return?

FQ30. Is there a better way to secure NPV-neutrality in light of the difficulties we identify with a true-up?

### **Regulatory depreciation question**

FQ31. Do you have any specific views or evidence relating to useful economic lives of network assets that may impact the assessment of appropriate depreciation rates?

### **Capitalisation rates question**

FQ32. Do you agree with our proposed approach to consider capitalisation rates following receipt of company Business Plans?

### **Notional gearing question**

FQ33. Do you have any comments on the working assumption for notional gearing of 60%, or on the underlying issues we identify above?

### **Notional equity issuance costs question**

FQ34. Do you agree with our proposed approach to consider notional equity issuance costs in light of RIIO-2 Business Plans and notional gearing?

### **Pension funding question**

FQ35. Do you agree that for RIIO-2 we align transmission and gas distribution with electricity distribution and treat Admin and PPF costs as part of totex?



### **Directly Remunerated Services question**

FQ36. Do you have any views on the categories of Directly Remunerated Services and their proposed treatment for RIIO-2?

### **Disposal of assets question**

FQ37. Do you have any views on the potential treatment of financial proceeds or fair value transfers of asset (including land) disposals for RIIO-2?

## **Electricity system operator questions**

### **ESO roles and principles questions**

ESQ1. Do you agree with our proposal to maintain the current roles and principles framework for RIIO-2?

ESQ2. Do you agree with our proposals to keep the ESO's code administration, EMR delivery body, data administration, and revenue collection functions in place for RIIO-2? Do you believe that any of these functions (or any other functions) should be opened up to competition, either now or in future?

ESQ3. Do you consider the ESO is best-placed to run early and late competitions?

### **Price control process questions**

ESQ4. Do you agree with our proposal to move to a two-year Business Planning cycled price control process for the ESO? If not, please outline your preferred alternative, noting any key features (e.g. uncertainty mechanisms or re-openers) that should be included.

ESQ5. What stakeholder engagement mechanisms should be put in place for the ESO's Business Planning and ongoing scrutiny of its performance? Do you agree with our proposal to maintain, and build upon, the role of the Performance Panel?

### **ESO output and incentives questions**

ESQ6. Do you agree with our proposed approach of using evaluative, ex-ante incentives arrangements for the ESO?

ESQ7. Do you agree that we should continue to apply a single 'pot' of incentives to the ESO, and that this should be a symmetrical positive/negative amount? If not, why not?

### **ESO cost assessment questions**

ESQ8. Do you agree with our proposed approach to assessing the costs of the ESO under RIIO-2? Do you think we should assess costs on an activity-by-activity basis? How would you go about defining the activity categories? Are there alternative approaches we should consider?

ESQ9. Do you consider the types of cost assessment activities we outline in this chapter are the right ones? Are there additional activities you think we should consider?

### **ESO finance questions**

ESQ10. Do you agree with our proposed remuneration model for the ESO under RIIO-2? Do you think it provides the right incentives for the ESO to deliver value for

money for consumers and the energy system? Are there other models you think are better suited?

ESOQ11. Are there any risks associated with our proposed remuneration model that you do not think have been effectively captured and addressed? Do you think that we should put in place any of the mechanisms intended to provide additional security to the ESO outlined in this chapter – e.g. parent company guarantee, insurance premium, industry escrow or capital facility?

ESOQ12. Do you agree with our proposal relating to remove the cost sharing factor? Can you foresee any unintended consequences in doing so, and how could these be mitigated?

ESOQ13. Do you agree with our proposal to introduce a cost disallowance mechanism for demonstrably inefficient costs? What criteria should we apply in considering what constitutes 'demonstrably inefficient'?

### **ESO innovation questions**

ESOQ14. Do you agree with our proposals to retain an innovation stimulus for the ESO, but tailor aspects of this innovation stimulus to take account of the nature of the ESO business?

ESOQ15. What ESO-specific issues should we consider in the design of the ESO innovation stimulus package

## **Gas distribution questions**

### **Chapter 3 questions – Meet the needs of consumers and network users**

#### **General output questions**

GDQ1. What are your views on the overall outputs package considered for this output category?

GDQ2. For each potential output considered (where relevant):

- a) Is it of benefit to consumers, and why?
- b) How, and at what level should we set targets? (e.g. should these be relative/absolute)
- c) What are your views on the design of the incentive? (e.g. reward/penalty/size of allowance)
- d) Where we set out options, what are your views on them and please explain whether there are further options we should consider?

GDQ3. What other outputs should we be considering, if any?

GDQ4. What are your views on the RIIO-GD1 outputs that we propose to remove?

In addition to the above questions, where relevant, please see the supplementary output specific questions below.

## **Supplementary output specific questions**

### Consumer vulnerability

GDQ5. What activities beyond those outlined in paragraph 3.12 should we consider when defining the role of the network companies in supporting consumers in vulnerable situations?

GDQ6. Can you provide any evidence that shows how the boundary we have set out for the networks' role in consumer vulnerability could impact the benefits received by consumers in vulnerable situations?

### Consumer vulnerability use-it-or-lose-it allowance

GDQ7. What is your preference on the two approaches we have outlined to implement the allowance, and why?

GDQ8. What examples can you provide of initiatives that could be funded through the allowance, and please explain why these activities would not go ahead without specific price control funding?

GDQ9. What is your preference on the three potential options we have outlined for a consumer vulnerability package, and why?

### Fuel Poor Network Extension Scheme

GDQ10. What should we include in the FPNES eligibility criteria in RIIO-GD2 to facilitate a well targeted, but effective scheme?

GDQ11. How should we incentivise the GDNs to improve the targeting of the FPNES?

GDQ12. How can we ensure that the FPNES is better coordinated with other funding sources to provide a whole house solution for the household?

GDQ13. What are your views on us requiring or incentivising the GDNs to ensure that households receiving FPNES connections also achieve a target level of energy efficiency?

GDQ14. Do you think the value of the FPNES voucher would need to be amended if the targeting of the scheme is increased? Please provide any evidence to support your view.

### Guaranteed Standards of Performance

GDQ15. What is your preferred option for revising customer payment caps?

GDQ16. Where, within the consultation ranges, do you think the standard and payment levels should be set?

GDQ17. Should any existing GSOP exemptions be removed or changed and should any additional exemptions be considered?

GDQ18. Do you support the proposal to make all GSOP payments automatic for RIIO-GD2 and why?

GDQ19. Are new GSOPs (or amendments to existing GSOPs) required and what might these look like?

GDQ20. Should there be a licence condition to prevent standards for the restoration of unplanned interruptions deteriorating (GSOP1)? If so, how should we set

the target, and should we take into account geographical differences. Please consider alongside our wider proposed interruptions package.

GDQ21. Is the existing 90% target pass rate for connections GSOPs still appropriate, if not how should it be revised?

GDQ22. Should licence conditions with target pass rates be introduced for any other GSOPs?

#### Average restoration time incentive for total unplanned interruptions

GDQ23. What do you think of the proposed new output based on average restoration time for total unplanned interruptions?

GDQ24. Should any interruption events be excluded from the average restoration time incentive for total unplanned interruptions, and why?

GDQ25. What are your views on separating interruptions that occur in MOBs into a specific output?

### **Chapter 4 questions – Deliver an environmentally sustainable network**

#### **General output questions**

GDQ26. What are your views on the overall outputs package considered for this output category?

GDQ27. For each potential output considered (where relevant):

- a) Is it of benefit to consumers, and why?
- b) How, and at what level should we set targets? (e.g. should these be relative/absolute)
- c) What are your views on the design of the incentive? (e.g. reward/penalty/size of allowance)
- d) Where we set out options, what are your views on them and please explain whether there are further options we should consider?

GDQ28. What other outputs should we be considering, if any?

GDQ29. What are your views on the RIIO-GD1 outputs that we propose to remove?

GDQ30. What are your views on the priorities we've identified for the gas distribution sector in delivering an environmentally sustainable network? Should measures proposed for electricity and gas transmission, such as BCF reporting and strategies for including in Business Plans, also apply to gas distribution?

In addition to the above questions, where relevant, please see the supplementary output specific questions below.

#### **Supplementary output specific questions**

##### Decarbonisation of heat

GDQ31. Do you agree with our proposed approaches to funding GDN activities over RIIO-GD2 related to Heat decarbonisation?

##### Distributed Gas Connections Guide and distributed gas information strategies

GDQ32. Are the GDNs' Distributed Gas Connections Guides and distributed gas information strategies helpful and effective? If not, how could they be improved?

## **Chapter 5 questions – Maintain a safe and resilient network**

### **General output questions**

GDQ33. What are your views on the overall outputs package considered for this output category?

GDQ34. For each potential output considered (where relevant):

- a) Is it of benefit to consumers, and why?
- b) How, and at what level should we set targets? (e.g. should these be relative/absolute)
- c) What are your views on the design of the incentive? (e.g. reward/penalty/size of allowance)
- d) Where we set out options, what are your views on them and please explain whether there are further options we should consider?

GDQ35. What other outputs should we be considering, if any?

GDQ36. What are your views on the RIIO-GD1 outputs that we propose to remove?

In addition to the above questions, where relevant, please see the supplementary output specific questions below.

### **Supplementary output specific questions**

#### Repex

- GDQ37. What are your thoughts on our proposals for Tier 1 outputs?
- GDQ38. Do you think we should set an output for replacing non-PE services?
- GDQ39. Do you think we should set outputs for asset maintenance repex activities?
- GDQ40. What are your thoughts on not including Mains Replacement Level of Risk Removed, GIBs and fractures as output measures for RIIO-GD2?
- GDQ41. Do you agree with our proposed approach to repex uncertainty mechanisms?

#### NTS exit capacity

- GDQ42. What are your views on our proposal to use final offtake capacity prices rather than T-3 offtake capacity price estimates in the calculation of incentive rewards and penalties in RIIO-GD2?

#### GDN record keeping

- GDQ43. Do you consider that an output(s) is necessary:
- a) for MOBs record keeping (in the form of a bespoke Price Control Deliverable)?
  - b) for other specific areas of GDN record keeping (if so which areas)?
  - c) to cover GDN record keeping requirements as a whole?

### **Chapter 6 questions – Cost assessment**

- GDQ44. Do you agree with our intention to evolve the RIIO-GD1 approach for RIIO-GD2?
- GDQ45. Do you have any comments on our initial views for cost assessment, including appropriate cost categories, cost drivers, analysis toolkit and how we combine the analysis?
- GDQ46. Do you have any views on our proposed options for loss of metering work?
- GDQ47. Do you agree with our proposal for implementing symmetrical adjustments for regional or company specific factors?

### **Chapter 7 questions – Uncertainty mechanisms**

#### **General uncertainty mechanism questions**

- GDQ48. What are your views on the proposed uncertainty mechanisms and their design?
- GDQ49. Are there any additional uncertainty mechanisms that we should consider across the sector and if so, how should these be designed?
- GDQ50. What are your views on the RIIO-GD1 uncertainty mechanisms we propose to remove?

In addition to the above questions, where relevant, please see the supplementary uncertainty mechanism specific questions below.

## **Supplementary uncertainty mechanism specific questions**

### Review of Agency (Xoserve) costs

GDQ51. What do you think is the most appropriate approach for funding the GTs' expenditure for Xoserve in RIIO-2 and why?

GDQ52. If Xoserve takes on any services beyond its core Central Data Service Provider role, how should we treat the costs and risks associated with these additional services through the price control?

## **Gas Transmission questions**

### **Chapter 2 - Context**

GTQ1. Do you have any feedback on our proposals for simplifying the RIIO-2 gas transmission price control package, or suggestions for further simplification?

GTQ2. Do you have any views on the extent to which the potential outputs discussed in this document:

- a) achieve the appropriate balance and focus on the areas that are of value to consumers and should be included as part of a RIIO-GT2 outputs package;
- b) align with our overarching outputs framework as described in the Core Document;
- c) we also welcome views on whether there are any alternative outputs and/ or mechanisms not identified here which we should be considering.

### **Chapter 3 questions – Meet the needs of consumers and network users**

#### **General output questions**

GTQ3. What are your views on the overall outputs package considered for this output category?

GTQ4. For each potential output considered (where relevant):

- a) Is it of benefit to consumers, and why?
- b) How, and at what level should we set targets? (e.g. should these be relative/absolute).
- c) What are your views on the design of the incentive? (e.g. reward/penalty/size of allowance).

GTQ5. What other outputs should we be considering, if any?

GTQ6. What are your views on the RIIO-1 outputs that we propose to remove?

In addition to the above questions, where relevant, please see the supplementary output specific questions below.

#### **Supplementary output specific questions**

##### Stakeholder Engagement Incentive

GTQ7. We welcome views from stakeholders on the above options.

GTQ8. Do you think it would be possible to establish clear and appropriate KPIs and deliverables in this area?

### Satisfaction Surveys

GTQ9. We welcome views from stakeholders on the above options.

### Quality of demand forecasts

GTQ10. Does NGGT's forecasts of demand provide a service that is valued by consumers and network users? Please explain why.

GTQ11. Should gas consumers pay for NGGT to produce accurate demand forecasts? What is the value for consumers from increased accuracy?

## **Chapter 4 questions – Deliver an environmentally sustainable network**

### **General output questions**

GTQ12. What are your views on the overall outputs package considered for this output category?

- a. For each potential output considered (where relevant):
- b. Is it of benefit to consumers, and why?
- c. How, and at what level should we set targets? (e.g. should these be relative/absolute).
- d. What are your views on the design of the incentive? (e.g. reward/penalty/size of allowance).

GTQ13. Where we set out options, what are your views on them and please explain whether there are further options we should consider.

GTQ14. What other outputs should we be considering, if any?

GTQ15. What are your views on the RIIO-1 outputs that we propose to remove?

GTQ16. We welcome views on whether further regulatory mechanisms are needed to drive NGGT to be more proactive in reducing its impact on the environment and contributing to the transition to the low carbon energy system.

In addition to the above questions, where relevant, please see the supplementary output specific questions below.

### **Supplementary output specific questions**

#### NTS Shrinkage

GTQ17. Do you think that the 'compressor fuel use' element of the shrinkage incentive should be included within NGGT's baseline Totex allowance? To what extent do you think elements of shrinkage are within the control of National Grid Gas

#### Low carbon energy systems and decarbonisation of heat

GTQ18. Do you have any views on how NGGT's can make a contribution to the transition to a low carbon energy system and support the decarbonisation of heat?

#### Opportunity to propose bespoke outputs

GTQ19. Do you think we should consider proposals from NGGT for additional outputs and incentives to support our environmental objectives?



## **Chapter 5 questions – Maintain a safe and resilient network**

### **General output questions**

GTQ20. What are your views on the overall outputs package considered for this output category?

GTQ21. For each potential output considered (where relevant):

- a. Is it of benefit to consumers, and why?
- b. How, and at what level should we set targets? (e.g. should these be relative/absolute).
- c. What are your views on the design of the incentive? (e.g. reward/penalty/size of allowance).
- d. Where we set out options, what are your views on them and please explain whether there are further options we should consider.

GTQ22. What other outputs should we be considering, if any?

GTQ23. What are your views on the RIIO-1 outputs that we propose to remove?

In addition to the above questions, where relevant, please see the supplementary output specific questions below.

### **Supplementary output specific questions**

#### Safety

GTQ24. Do you have views on whether the proposed approach on safety is appropriate for RIIO-GT2?

#### Network capability

GTQ25. Do you agree with our assessment of the problems with the current arrangements, and how these problems can lead to consumer detriment?

GTQ26. Do you agree with our proposal to require NGGT to carry out an initial network capability assessment and submit the results as part of its Business Plan?

GTQ27. Do you agree that if baseline obligated entry or exit capacities are found to be at inappropriately high levels, we should consider revising them downwards in line with NGGT's proposals?

#### Arrangements for accessing unsold capacity

GTQ28. Do you agree with our proposal to require NGGT to review the arrangements for accessing unsold capacity?

GTQ29. Do you agree with our proposed scope for the review? Are there other aspects of access that should be reviewed at the same time?

### **Chapter 6 questions – Cost assessment**

GTQ30. Do you agree with our intention to evolve the RIIO-GT1 approach for RIIO-GT2?

GTQ31. Do you have any comments on appropriate cost categories or approaches to cost assessment?

GTQ32. Do you agree with our proposed approach to cost categorisation? Please provide an explanation to your answer.

GTQ33. Do you support our view of the need for greater granularity and transparency in cost reporting to further develop our cost assessment capability?

GTQ34. We invite views on whether the proposed toolkit is appropriate or there are there other assessment techniques we should consider for our cost assessment toolkit in RIIO-GT2.

### **Chapter 7 questions – Uncertainty mechanisms**

#### **General uncertainty mechanism questions**

GTQ35. What are your views on the proposed uncertainty mechanisms and their design?

GTQ36. Are there any additional mechanisms that we should be considering across the sector? If so, how should these be designed

GTQ37. What are your views on the RIIO-GT1 uncertainty mechanisms we propose to remove?

In addition to the above questions, where relevant, please the see the supplementary uncertainty mechanisms questions below.

#### **Supplementary uncertainty mechanism specific questions**

##### Review of Agency (Xoserve) costs

GTQ38. What do you think is the most appropriate approach for funding the Gas Transporters' expenditure for Xoserve in RIIO-2? In particular, which approach do you think is in the best interest of consumers?

GTQ39. If Xoserve takes on any services beyond its core Central Data Service Provider role, how should we treat the costs and risks associated with these additional services through the price control?

## **Electricity Transmission questions**

### **Chapter 3 questions – Meet the needs of consumers and network users**

#### **General output questions**

ETQ1. What are your views on the overall outputs package considered for this output category?

ETQ2. For each potential output considered (where relevant):

- a) Is it of benefit to consumers, and why?
- b) How, and at what level should we set targets? (e.g. should these be relative/absolute)
- c) What are your views on the design of the incentive? (e.g. reward/penalty/size of allowance)
- d) Where we set out options, what are your views on them and please explain whether there are further options we should consider?

ETQ3. What other outputs should we be considering, if any?

ETQ4. What are your views on the RIIO-ET1 outputs that we propose to remove?

In addition to the above questions, where relevant, please the see the supplementary output specific questions below.

## **Supplementary output specific questions**

### Stakeholder Satisfaction Output: Stakeholder Engagement Incentive

ETQ5. We welcome views on whether a specific incentive for stakeholder engagement is appropriate in RIIO-ET2, and if so, whether this should be reputational or financial.

ETQ6. Do you think individual components of the SSO should be combined into a single incentive mechanism in RIIO-ET2, should the SEI and components of the SSO be retained?

ETQ7. We invite views on types of Business Plan commitments that would be appropriate for stakeholder engagement.

ETQ8. We welcome views on the potential approaches to setting a financial incentive for the SSO in RIIO-ET2, if retained. Are there any other considerations we should take into account if we move to a fixed reward pot that network companies compete for?

### Stakeholder Satisfaction Output: Satisfaction Survey, KPIs, and External Assurance components

ETQ9. Do you have any views on whether we should retain a TO User Survey, targeted at a number of key areas as identified in this document? Are there any alternative mechanisms to address potential issues in these areas we should be considering?

ETQ10. Are there any other areas, beyond those identified in this consultation document, which we should consider targeting through a potential survey?

ETQ11. Do you have any views on our proposal to retain one question on overall satisfaction from which the scores will be collated?

ETQ12. Do you agree that we should use RIIO-ET1 performance as a starting point for setting a RIIO-ET2 baseline? What alternative approach(es) should we consider?

ETQ13. Do you agree that the User Groups could provide guidance on the stakeholders that should be included in the survey sample? Are there any specific stakeholders that you think must be surveyed to improve the validity of the scores?

ETQ14. Do you agree with our proposals to remove the financial incentive associated with the KPI and EA components? Should the EA component be retained as a minimum requirement/ licence obligation?

### Timely Connections Output

ETQ15. Do you have any views on whether we should retain the RIIO-ET1 Timely Connections Output (which applies to the connection offer stage) for RIIO-ET2, including the penalty rate, and extend it to NGET?

ETQ16. Do you have any views on options for capturing the quality of the overall connections process through our stakeholder engagement proposals, for example through the use of a survey?

ETQ17. Are there any alternative options for capturing the quality of the overall connection process, not identified in this consultation document, which we should be considering?

ETQ18. How do you think we can ensure that transmission operators are not rewarded and/or penalised for actions actually undertaken by the System Operator?

### Energy Not Supplied

ETQ19. Do you have any views on whether we should retain the ENS incentive, and whether we should retain it as a positive reward mechanism, or move towards a penalty-only scheme? What impact could the move to a penalty-only mechanism have on TO decision-making and behaviours? Please evidence.

ETQ20. Do you have any views on how Ofgem should take into account issues other than past performance when determining baseline targets? For example, processes adopted as BAU, increased TO experience and expertise on fault mitigation and management, future modernisation projects, etc. What adjustment mechanisms are appropriate?

ETQ21. Is the introduction of an improvement factor appropriate within the context of the electricity transmission system? What other mechanisms are appropriate?

ETQ22. We welcome views on additional considerations we should take into account when setting baseline targets?

ETQ23. Do you agree with our proposals to base the ENS incentive rate in RIIO-ET2 on an updated, agreed VoLL?

ETQ24. Do you agree with our proposals to retain the financial collar for the ENS incentive in RIIO-ET2?

ETQ25. We welcome views on approaches to estimating embedded generation at GSP points.

ETQ26. What measures need to be in place to facilitate the collection of data on embedded generations and other real time information? How do you propose to approximate embedded generation data?

ETQ27. We invite views on changing the metrics used to measure reliability on the transmission system from MWh lost to CI/CML. What measures and processes (e.g. data sharing frameworks) need to be in place to facilitate the collection of CI/CML data?

ETQ28. Do you have any views on whether all loss of supply events should be incentivised? Do you have any views on amending the scope of the definition of events excluded as 'loss of supply events' and/or 'exceptional events'?

### **Chapter 4 questions – Deliver an environmentally sustainable network**

#### **General output questions**

ETQ29. What are your views on the overall outputs package considered for this output category?

ETQ30. For each potential output considered (where relevant):

- a) Is it of benefit to consumers, and why?
- b) How, and at what level should we set targets? (e.g. should these be relative/absolute)
- c) What are your views on the design of the incentive? (e.g. reward/penalty/size of allowance)
- d) Where we set out options, what are your views on them and please explain whether there are further options we should consider?

ETQ31. What other outputs should we be considering, if any?

ETQ32. What are your views on the RIIO-ET1 outputs that we propose to remove?

In addition to the above questions, where relevant, please see the supplementary output specific questions below.

## **Supplementary output specific questions**

### Environmental framework - Business Plans and annual monitoring

ETQ33. Do you have any views on the extent to which company activities relating to environmental impacts should be embedded in Business Plans?

ETQ34. We invite views on whether the proposed environmental impact categories are appropriate areas to focus on. Are there any areas that should be excluded and/ or other areas that should be covered? We also invite views on the potential indicators and/ or metrics that are appropriate for each environmental impact category.

ETQ35. We welcome views on the option of an annual reporting framework to increase transparency of the transmission networks' impact on the environment.

### Potential for bespoke ODIs around the low carbon transition

ETQ36. We welcome views on whether we should introduce an option for the TOs to develop bespoke ODIs with stakeholders for delivering an additional contribution to the low carbon transition.

ETQ37. We invite views on the kind of activities, not captured elsewhere, that could be captured through such ODIs.

ETQ38. We invite views on how such an ODI might operate, and any other factors we should take into account in considering bespoke ODI for the low carbon transition.

### SF<sub>6</sub> and other insulation and interruption gases (IIG) leakage

ETQ39. We welcome views on whether we should retain a financial reward and penalty incentive for the leakage of SF<sub>6</sub> in RIIO-ET2, or move to a penalty only or reputational incentive.

ETQ40. We welcome views on the potential impact of a move away from a financial incentive (or move to penalty-only) on TO behaviours.

ETQ41. We invite views on whether leakage from other IIGs should also be captured in the incentive measure.

ETQ42. We welcome views on whether some leakage events should continue to be excluded from the incentive.

### Electricity losses from the transmission network

ETQ43. Do you have any views on the proposed approach for integrating any losses reporting requirements into the proposed Business Plan and annual public reporting framework?

ETQ44. Do you have any views on the introduction of a target or measure for improving metering at and the energy efficiency of substations? How could this work in practice?

### Visual amenity impacts of transmission infrastructure

ETQ45. We welcome views on incentivising the TOs' engagement with stakeholders on the development of new transmission projects through our stakeholder engagement proposals, for example through the use of a survey.

ETQ46. Do you have views on the retaining the existing scheme to mitigate the visual impact of pre-existing transmission infrastructure in designated areas? Do you agree that any decision to implement new funding arrangements should be subject to updated analysis around willingness to pay?

ETQ47. Do you agree with our proposals to modify the implementation process by which funding requests for mitigation projects are submitted and approved?

ETQ48. We welcome stakeholders' views on any other considerations they think are relevant to policy development for visual amenity issues in RIIO-ET2.

## **Chapter 5 questions – Maintain a safe and resilient network**

### **General output questions**

ETQ49. What are your views on the overall outputs package considered for this output category?

ETQ50. For each potential output considered (where relevant):

- a) Is it of benefit to consumers, and why?
- b) How, and at what level should we set targets? (e.g. should these be relative/absolute)
- c) What are your views on the design of the incentive? (e.g. reward/penalty/size of allowance)
- d) Where we set out options, what are your views on them and please explain whether there are further options we should consider?

ETQ51. What other outputs should we be considering, if any?

ETQ52. What are your views on the RIIO-ET1 outputs that we propose to remove?

In addition to the above questions, where relevant, please see the supplementary output specific questions below.

### **Supplementary output specific questions**

#### Network Access Policy (NAP)

ETQ53. Do you agree with our proposed approach to safety?

ETQ54. Do you agree with our proposal to retain the NAP as a licence obligation?

ETQ55. Do you have any views on the potential risks and benefits of introducing a single, consolidated NAP, and of expanding the NAP to cover interactions with third parties?

ETQ56. We welcome views on these proposals, and on any potential interactions and/ or duplications between these proposals, the NAP and the STC.

#### Successful delivery of large capital investment projects

ETQ57. Do you agree with our proposed approach for ensuring TOs do not benefit financially from delays in delivering large capital investment projects?

ETQ58. We invite views on the suitability of the milestone approach, the types of milestones or delivery criteria we should be considering and any potential challenges associated with implementing such an arrangement.

ETQ59. Are there any alternatives which we should also consider?

ETQ60. We invite views on the circumstances we should consider options for minimising consumer detriment and/ or sharing consumer detriment with consumers.

ETQ61. We are seeking views on these two options, including ways in which we could measure and reflect consumer detriment.

ETQ62. Are there any alternatives not identified here which you think we should be considering?

## **Chapter 6 questions – Cost assessment**

ETQ63. Do you agree with our intention to evolve the RIIO-ET1 approach for RIIO-ET2?

ETQ64. Do you have any comments on appropriate cost categories, cost drivers or approaches to cost assessment?

ETQ65. We invite views on the appropriateness of our proposed cost categories for RIIO-ET2.

ETQ66. We invite views on the principles of a good cost driver and our approach to identifying suitable RIIO-ET2 cost drivers is appropriate.

ETQ67. We welcome any early views on how we can combine the analysis in order to ensure ex ante allowances reflect efficient costs.

### **Chapter 7 questions – Uncertainty mechanisms**

#### **General uncertainty mechanism questions**

ETQ68. We would welcome views on the design and suitability of existing uncertainty mechanisms for RIIO-ET2, and whether any of these should be removed.

ETQ69. Are there any additional mechanisms that we should consider across the sector and if so, how should these be designed?

ETQ70. We would welcome views from respondents on the continuing relevance of these mechanisms and any changes to the way that they operate if they are to continue.

## Appendix 7 - Glossary

### A

#### Allowed revenue

The amount of money that a network company can earn on its regulated business.

#### The Authority/Ofgem/GEMA

Ofgem is the Office of Gas and Electricity Markets, which supports the Gas and Electricity Markets Authority (GEMA or 'the Authority'), the body established by section 1 of the Utilities Act 2000 to regulate the gas and electricity markets in Great Britain.

#### Asset stranding

Assets which have subsequently become either not used or underused as compared with initial expectations.

### B

#### Baseline Allowed Return

Our estimation, taking into account expectations, of the costs of debt and equity capital. Based on a weighted average of the pre-tax cost of debt and the post-tax cost of equity, adjusted for ex ante expectations if any. The weighting uses notional gearing.

#### Base revenue

Base revenue is the amount of revenue network companies are allowed to recover as set up front at the beginning of the price control. Additional revenue may be allowed during the price control under certain, specified circumstances, for example, if it is triggered under an uncertainty mechanism.

#### Basis Points ('bps')

Used in finance to express small changes in rates. One basis point is 0.01% or one hundredth of 1%. 50bps is 0.5%.

#### Benchmarking

The process used to compare a company's performance (eg its costs) to that of best practice or to average levels within the sector.

#### Biogas

A gas produced by the biological breakdown of organic matter in the absence of oxygen. This gas can be used in a similar manner to natural gas to produce heat or electricity but unlike natural gas, biogas is a renewable fuel.

#### Bond

A type of debt instrument used by companies and governments to finance their activities. Issuers of bonds usually pay regular cash flow payments (coupons) to bond holders at a pre-specified interest rate and for a fixed period of time.



## C

### Capital Asset Pricing Model (CAPM)

A theoretical model that describes the relationship between risk and required return of financial securities. The basic idea behind the CAPM is that investors require a return for the level of risk in their investment.

### Capital expenditure (capex)

Expenditure on investment in long-term distribution and transmission assets, such as gas pipelines or electricity overhead lines.

### Capitalisation policy

The approach that the regulator follows in deciding the percentage of total expenditure added to the RAV (and thus remunerated over time) and the percentage of expenditure remunerated in the year that it is incurred.

### Carbon footprint

Total amount of greenhouse gas emission caused directly and indirectly by a business or activity.

### Challenge Group (CCG)

Ofgem has set up a central RIIO-2 Challenge Group that is independently chaired. It will provide Ofgem with a public report on companies' Business Plans from the perspective of end consumers.

### The Competition and Markets Authority (CMA)

A non-ministerial government department in the UK that considers regulatory references and appeals, conducts in depth inquiries into mergers, markets and aspects of regulation of the major regulated industries.

### Consumer

Within the regulatory framework we consider consumers as the end user of gas and electricity, whether for domestic or business use.

### Consumer Price Index (CPI/CPIH)

The CPI is an aggregate measure of changes in the cost of living in the UK. It differs from the RPI in that, it does not measure changes in housing costs and mortgage interest repayments - whereas the RPI does, they are calculated using different formulae, and have a number of other subtler differences.

CPIH includes a measure of owner-occupiers' housing costs.

### Corporation tax

A UK tax levied on a company's profits.

### Cost of capital

The cost of capital is the combined cost of debt and cost of equity.

#### Cost of debt

The effective interest rate that a company pays on its current debt. Ofgem calculates the cost of debt on a pre-tax basis with reference to a trailing average index of debt costs.

#### Cost of equity

The rate of return on investment that is required by a company's shareholders. The return consists both of dividend and capital gains (ie increases in the share price). Ofgem calculates the cost of equity on a post-tax basis.

#### Credit rating

An evaluation of a potential borrower's ability to repay debt. Credit ratings are calculated using a number of factors including financial history and current assets and liabilities. There are three major credit rating agencies (Standard and Poor's, Fitch, and Moody's) who use broadly similar credit rating scales, with D being the lowest rating (highest risk) and AAA being the highest rating (negligible risk).

#### Customer Engagement Group

In RIIO-2, distribution companies will each be required to set up a Customer Engagement Group. These Groups will provide Ofgem with a public report on their views and the companies' Business Plans from the perspective of local stakeholders.

### **D**

#### Decarbonisation

In a network price control context, the role of network operators in facilitating the reduction or removal of carbon dioxide from energy and other sectors of the economy, e.g. transport.

#### Depreciation

Depreciation is a measure of the consumption, use or wearing out of an asset over the period of its economic life.

#### Distributed generation (DG)

Any generation connected directly to the local distribution network, as opposed to the transmission network, as well as combined heat and power schemes of any scale.

#### Distribution Network Operators (DNOs)

A DNO is a company that operates the electricity distribution network, which includes all parts of the network from 132kV down to 230V in England and Wales. In Scotland 132kV is considered to be a part of transmission rather than distribution so their operation is not included in the DNOs' activities.

There are 14 licensed DNOs that are subject to RIIO price controls. These are owned by six different groups.

#### Distribution Price Control Review 4 (DPCR4)

The price control applied to the electricity distribution network operators from 1 April 2005 until 31 March 2010.

#### Distribution Price Control Review 5 (DPCR5)

The price control applied to the electricity distribution network operators, following DPCR4. It ran from 1 April 2010 to 31 March 2015.

#### Distribution System

The system of low voltage electric lines and low pressure pipelines providing for the transfer of electricity and gas within specific regions of GB.

#### Distribution System Operation (DSO) roles

The development of distribution system operation roles is a live and evolving policy area with various workstreams currently in progress. In general, DSO roles refer to innovative techniques and use of market-based solutions as alternatives to network reinforcement, as well as greater coordination with other network and system operators to achieve efficient outcomes in a whole system context.

### **E**

#### Economic life

The period over which an asset performs a useful function.

#### Electricity System Operator (ESO)

The entity responsible for operating the electricity transmission system and for entering into contracts with those who want to connect to and/or use the electricity transmission system. National Grid is the electricity system operator in Great Britain.

#### End-use energy efficiency

A reduction in the amount of energy required to provide energy services to consumers. For example, loft, cavity wall insulation and double glazing allows a building to use less heating and leads to a reduction in base heat demand.

#### Equity beta

The equity beta measures the covariance of the returns on a stock with the market return. The weaker this covariance, the lower the return that investors would require on that stock.

#### Equity risk premium

A measure of the expected return, on top of the risk-free rate, that an investor would expect for a portfolio of risk-bearing assets. This captures the non-diversifiable risk that is inherent to the market. Sometimes also referred to as the Market Risk Premium.

#### Ex ante

Refers to a value or parameter established upfront (e.g. at the price control review to be used in the price control period ahead).

#### Ex post

Refers to a value or parameter established after the event (e.g. following commencement of the price control period).

### **F**

#### Fast money

Fast money allows network companies to recover a percentage of total expenditure within a one-year period with the rest being capitalised into the RAV (slow money).

#### Fast-tracking

Incentive that was available as part of RIIO-1, where a network company submitted a realistic and well-justified Business Plan that clearly provided value to consumers, we could apply lighter touch regulatory scrutiny to elements of the plan. If the plan was of sufficiently high-quality and provided good value overall, we considered it for fast-tracking. This meant we accepted the Business Plan as submitted and concluded the company's price control review early.

#### Financeability

Financeability relates to whether a network company can finance the activities which are the subject of their licence. Financeability is assessed using a range of different qualitative and quantitative measures, including financial ratios.

#### Flexibility

The ability to modify generation and/or consumption patterns in reaction to an external signal (such as a change in price, or a message).

#### Fuel poverty

In England, a household is said to be fuel poor if it has above-average required fuel costs, and if it were to spend the amount needed to fully meet its energy needs, it would be left with a residual income below the official poverty line.

In Scotland and Wales, fuel poverty is currently defined as households which would have to spend 10% of their income to achieve adequate standards of warmth (although the calculating methods differ between Scotland and Wales).

Please note, the Scottish Government published the [Fuel Poverty \(Target, Definition and Strategy\)\(Scotland\) Bill](#) in June 2018 which may change the definition of fuel poverty in Scotland.

## **G**

#### Gas Distribution Networks (GDNs)

GDNs transport gas from the National Transmission System to final consumers and to connected system exit points. There are eight GDNs managed by four companies that are subject to RIIO price controls.

#### Gas Distribution Price Control Review (GDPCR)

The price control applied to gas distribution networks that covered the extension of the existing price control for the year 2007-08 and a new price control for the five-year period commencing 1 April 2008.

#### Gas System Operator (GSO)

The entity responsible for operating the gas transmission system and for entering into contracts with those who want to connect to and/or use the gas transmission system. National Grid Gas Transmission is the gas transmission system operator in Great Britain.

#### Gas transporter (GT)

The holder of a Gas Transporter licence.

## Gearing

A ratio measuring the extent to which a company is financed through borrowing. Ofgem calculates gearing as the percentage of net debt relative to the RAV.

## Gilts

A bond issued by the UK government.

## H

### Headroom

A term in finance related to borrowing which has different meanings in different contexts. Here we use it to mean a safety margin of a borrower.

## I

### Indexation

The adjustment of an economic variable so that the variable rises or falls in accordance with index movements (e.g. inflation indices, bond indices).

### Inflation index

This is a measure of the changes in given price levels over time. Common examples are the Retail Prices Index (RPI) the Consumer Prices Index (CPI) and the Consumer Prices Index including housing costs (CPIH), which are all measures of the aggregate change in consumer prices over time.

### Innovation Funding Incentive (IFI)

The IFI was intended to encourage network companies to invest in appropriate research and development activities that are designed to enhance technical development of the networks and to deliver value (ie financial, supply quality, environmental, safety) to end consumers.

### Information Quality Incentive (IQI)

The IQI mechanism incentivises network companies not to inflate their expenditure forecasts. It does this in two ways: by giving additional income to companies who forecast spend close to our assessment; and by providing these companies with a higher incentive rate than those companies with higher capex forecasts, thereby increasing their rewards for outperformance.

### Interconnector

Equipment used to link electricity or gas systems, in particular between two EU Member States.

### Intermittent generation

Electricity generation technology that produces electricity at irregular and, to an extent, unpredictable intervals, e.g. wind turbines.

## L

### Licence conditions

For the purposes of this document, conditions within the licence granted to network companies to require them to carry out their regulated activities. The Authority has the

power to take appropriate enforcement action in the case of a failure to meet obligations contained within licence conditions.

#### Load Related Capex

Capital expenditure on new assets to accommodate changes in the level or pattern of electricity or gas supply and demand.

#### Low Carbon Networks Fund (LCN Fund)

A funding mechanism introduced under DPCR5 to encourage the DNOs to prepare for the role they will have to play as GB moves to a low carbon economy.

### **M**

#### Market to Asset Ratios (MAR)

The MAR represents the ratio between the market enterprise value ie the market valuation of a company, of a regulated network and its regulatory asset value (RAV).

### **N**

#### Net Present Value (NPV)

NPV is the discounted sum of future cash flows, whether positive or negative, minus any initial investment.

#### Network charges

These are charges recovered for the use of network services.

#### Network users

Companies along the gas and electricity supply chain (ie producers and generators, transmission and distribution network companies, and energy suppliers) and consumers.

#### Non-Load Related Capex

The replacement or refurbishment of assets which are either at the end of their useful life due to their age or condition, or need to be replaced on safety or environmental grounds.

#### Notional company/business

A hypothetical, but typical, network company.

### **O**

#### Offshore transmission

The majority of offshore generation will be connected to the electricity grid through offshore transmission cables. Offshore transmission is defined as being any offshore transmission network that operates at 132kV or above.

#### Offshore Transmission Owners (OFTOs)

OFTOs operate and maintain the offshore transmission assets.

#### Operating Expenditure (opex)

The costs of the day-to-day operation of the network such as staff costs, repairs and maintenance expenditures, and overheads.

## Outputs

Services, requirements, and deliverables that network companies are funded and incentivised to deliver through the price control.

### Output delivery incentives (ODIs)

In RIIO-2, we propose that output delivery incentives will apply where service quality improvements beyond a level that is funded through base revenues may be in the interests of consumers.

## **P**

### Pass-through (of costs)

Costs for which companies can vary their annual revenue in line with the actual cost, either because they are outside network companies' control or because they have been subject to separate price control measures.

### Price control

The control developed by the regulator to set targets and allowed revenues for network companies. The characteristics and mechanisms are developed by the regulator in the price control review period depending on network company performance over the last control period and predicted expenditure (companies' Business Plans) in the next.

### Price control deliverables (PCDs)

In RIIO-2, we propose that price control deliverables will reflect:

- Outputs or input activities to be delivered to a stated standard, for example in response to government policy or Ofgem direction
- Output or input activities that are significant and/or high value (e.g. a list of large capital projects to a stated specification, budget and timing)

### Real Price Effects (RPEs)

Expected changes in input price indices, e.g. wages, relative to a measure of general inflation, such as the Retail Price Index (RPI), or CPI.

## **R**

### Regulatory Asset Value (RAV)

The value ascribed by Ofgem to the capital employed in the licensee's regulated business (the 'regulated asset base'). The RAV is calculated by summing an estimate of the initial market value of each licensee's regulated asset base at privatisation and all subsequent allowed additions to it at historical cost, and deducting annual depreciation amounts calculated in accordance with established regulatory methods. These vary between classes of licensee. A deduction is also made in certain cases to reflect the value realised from the disposal of assets comprised in the regulatory asset base. The RAV is indexed to allow for the effects of inflation on the licensee's capital stock.

### Regulatory burden

A term used to describe the cost to regulated companies – both monetary and opportunity – of regulation.

### Regulatory Instructions and Guidance (RIGs)

A document that is published as part of the price control settlement which sets out further detail on how the price control is to be implemented and how compliance with it will be monitored.

#### Reinforcement

The installation of new network assets to accommodate changes in the level or pattern of electricity or gas supply and demand.

#### Re-openers

A process undertaken in certain limited circumstances by Ofgem to amend revenue allowances (or the parameters that give rise to revenue allowances) within the price control period.

#### Research and development (R&D)

Work undertaken in order to increase knowledge, and used to create new processes or technologies that will advance capabilities.

#### Retail Prices Index (RPI)

The RPI is an aggregate measure of changes in the cost of living in the UK. It has a different formula to CPI; for example it measures changes in housing costs and mortgage interest repayments, whereas the CPI does not.

#### Return Adjustment Mechanisms (RAMs)

Failsafe mechanisms to mitigate the future risk of companies earning materially higher or lower than expected returns in a changing system.

#### Return on Regulatory Equity (RoRE)

RoRE is the financial return achieved by shareholders in a licensee during a price control period from its actual performance under the price control. RoRE is calculated post-tax and is estimated using certain regulatory assumptions, such as the assumed gearing ratio of the companies, to ensure comparability across the sector. We use a mix of actual and forecast performance to calculate eight-year average returns. These returns may not equal the actual returns seen by shareholders.

#### RIIO (Revenue = Incentives + Innovation + Outputs)

Ofgem's regulatory framework, stemming from the conclusions of the RPI-X@20 project. It builds on the success of the previous RPI-X regime, but better meets the investment and innovation challenge by placing much more emphasis on incentives to drive the innovation needed to deliver a sustainable energy network at value for money to existing and future consumers.

#### RIIO Electricity Distribution Price Control Review 1 (RIIO-ED1)

The price control applied to the electricity distribution network operators, following DPCR5. It runs from 1 April 2015 to 31 March 2023.

#### RIIO-Gas Distribution Price Control Review 1 (RIIO-GD1)

The price control review applied to the gas distribution network operators, following GDPCR. It runs from 1 April 2013 to 31 March 2021.

#### RIIO-Transmission Price Control Review 1 (RIIO-T1)



The price control review applied to the electricity and gas transmission network operators, following the TPCR4 rollover. It runs from 1 April 2013 to 31 March 2021.

#### Ring-fence

The Ring Fence Conditions in gas and electricity network operator licences provide assurance that network operators always have the financial and operational resources necessary to fulfil their obligations under legislation and their licences.

#### Risk-free rate

The rate of return that an investor would expect to earn on a riskless asset. Typically, government-issued securities are considered the best available indicator of the risk-free rate due to the extremely low likelihood of the government defaulting on its obligations.

#### RPI-X

The form of price control applied to regulated energy network companies before RIIO. Each company was given a revenue allowance in the first year of the control period. The price control then specified that in each subsequent year the allowance would move by 'X' % in real terms.

#### RPI-X@20

Ofgem's comprehensive review<sup>143</sup> of how we regulate energy network companies, announced in March 2008. Its conclusions, published in October 2010, resulted in the implementation of a new regulatory framework, known as the RIIO model.

## S

#### Shrinkage

Shrinkage is a term used to describe gas either consumed within or lost from a gas transporter's system. It includes leakage from the network, gas used by network operators during transportation (e.g. to power compressors), and gas stolen from the network.

#### Slow money

Slow money is where costs are added to the RAV and therefore revenues are recovered slowly (e.g. over 20 years) from both existing and future consumers.

#### Storage (electricity)

Storage refers to any mechanism which can store energy which has been converted into electricity. This can be primary (super-conducting and capacitor technologies); mechanical (pumped hydro, compressed air, flywheels); and electrochemical (batteries).

#### Storage (gas)

Installations owned by GDNs and contracted storage capacity from third parties, for example salt cavities, liquefied natural gas, storage vessels and gas holders. Gas storage is required to balance diurnal and seasonal variations in supply and demand.

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<sup>143</sup> <https://www.ofgem.gov.uk/network-regulation-riio-model/current-network-price-controls-riio-1/background-rpi-x20-review>

### Strategic Wider Works (SWW)

As part of the RIIO-T1 price control we put in place a mechanism to allow TOs to bring forward large investment projects where funding has not been awarded as part of the price control settlement.

### Supplier

Any person authorised to supply gas and/or electricity by virtue of a Gas Supply Licence and/or Electricity Supply Licence.

### Supply chain

Refers to all the parties involved in the delivery of electricity and gas to the final consumer - from electricity generators and gas shippers, through to electricity and gas suppliers.

### Sustainable energy sector

A sustainable energy sector is one that promotes security of supply over time; delivers a low carbon economy and associated environmental targets; and delivers related social objectives (e.g. fuel poverty targets).

### System Operator (SO)

The SO is the entity responsible for operating the transmission system and for entering into contracts with those who want to connect to the transmission system. In relation to electricity and gas this role is performed by National Grid.

## **T**

### Total expenditure (totex)

Totex includes both capital expenditure (capex) and operating expenditure (opex). It also includes replacement expenditure (repex) in gas distribution. Totex is made up of fast money and slow money.

### Total Market Return (TMR)

The TMR is a measure of return that equity investors expect for the market-average level of risk.

### Transmission Owners (TO)

Companies that hold transmission owner licences. Currently there are three electricity TOs: NGET, SP Energy Networks and SHE Transmission. NGGT is the gas TO.

### Transmission system

The system of high voltage electric lines and high pressure pipelines providing for the bulk transfer of electricity and gas across GB.

## **U**

### Uncertainty mechanisms

Uncertainty mechanisms allow changes to the base revenue during the price control period to reflect significant cost changes that are expected to be outside the company's control.

### User Group

In RIIO-2, transmission companies will be required to set up a User Group. This Group will provide Ofgem with a public report on their views and the companies' Business Plans from the perspective of network users.

**V**

Volume driver

A means of linking revenue allowances under a price control to specific measurable events that are considered to influence costs. An example might be to allow a specified additional revenue allowance for each megawatt of new generation connecting to the network. Volume drivers are used by Ofgem to increase the accuracy of the revenue allowances.

**W**

Whole system solutions

Solutions necessary to ensure that the energy system as a whole is effectively coordinated to deliver best value for consumers in response to the energy transition.

## Appendix 8 – Acronyms

BAU	Business as usual
BEIS	Department for Business, Energy and Industrial Strategy
Capex	Capital expenditure
CAPM	Capital Asset Pricing Model
CATO	Competitively Appointed Transmission Operator
CBA	Cost-benefit analysis
CCG	Consumer Challenge Group
CEPA	Cambridge Economic Policy Associates
CMA	Competition and Markets Authority
CPI	Consumer Price Index
CPIH	Consumer Price Index (includes a measure of owner occupiers' housing costs)
CPM	Competition Proxy Model
CSS	Cashflow supported status
CTU	Cash top up
DECC	Department of Energy and Climate Change (now defunct)
DNOs	Electricity distribution network operators
DPCR3/4/5	Electricity distribution price control reviews for 2000-05, 2005-10 and 2010-15
DRS	Directly remunerated services
DSO	Distribution system operation
DSR	Debt service requirements
ECA	Expected cash available
ENA	Energy Networks Association
ESO	Electricity system operator
GB	Great Britain
GDNs	Gas distribution networks
GEMA	Gas and Electricity Markets Authority
GSO	Gas system operator
HSE	Health and Safety Executive
IFI	Innovation funding incentive
IGTs	Independent gas transporters
IQI	Information quality incentive
IRM	Innovation roll-out mechanism
ITPR	Integrated Transmission Planning and Regulation
LCNF	Low Carbon Networks Fund
MAR	Market to Asset Ratio
NARM	Network Asset Risk Metric
NIA	Networks Innovation Allowance
NIC	Networks Innovation Competition
NOMs	Network output measures
NPV	Net present value
OBR	Office for Budget Responsibility
ODIs	Outcome delivery incentives
Ofgem	Office for Gas and Electricity Markets
OFTO	Offshore Transmission Owner
Ofwat	Water Services Regulation Authority

Opex	Operating expenditure
ORR	Office for Rail and Road
PCD	Price control deliverable
PPF	Pension protection fund
PSUP	Physical Security Upgrade Programme
RAM	Return adjustment mechanism
RAV	Regulatory asset value
Repex	Iron mains replacement expenditure in gas distribution
RIGs	Regulatory Instructions and Guidance
RIIO	Revenue = Incentives + Innovation + Outputs
RIIO-ED1	Electricity distribution price control review for 2015-23
RIIO-GD1	Gas distribution price control review for 2013-21
RIIO-T1	Electricity and gas transmission price control review for 2013-21
RoRE	Return on regulatory equity
RPEs	Real price effects
RPI	Retail Prices Index
RPI-X	Retail Prices Index less an efficiency savings estimate (price controls)
RRPs	Regulatory reporting packs
SO	System Operator
SPV	Special Purpose Vehicle
TIM	Totex Incentive Mechanism
TMR	Total Market Return
TO	Transmission owner
Totex	Total expenditure
UK	United Kingdom
WACC	Weighted average cost of capital
WICS	Water Industry Commission for Scotland
WTP	Willingness to pay

## Appendix 9 – Licensees subject to RIIO price controls

Electricity Distribution Licence Holders	Electricity Transmission Licence Holders	Gas Transporters Licence Holders
UK Power Networks (UKPN)	National Grid Electricity Transmission Plc (NGET)	Cadent Gas Ltd
Eastern Power Networks Plc (EPN)		
London Power Networks Plc (LPN)		
South Eastern Power Networks Plc (SPN)		
Northern Powergrid (NPg)	Scottish Hydro Electric Transmission Plc (SHETL)	National Grid Gas Plc (NGGT)
Northern Powergrid (Northeast) Limited (NPgN)		
Northern Powergrid (Yorkshire) Plc (NPgY)		
Scottish and Southern Energy Power Distribution (SSEPD)	SP Transmission Plc (SPT)	Northern Gas Networks Ltd (NGN)
Scottish Hydro Electric Power Distribution Plc (SSEH)		
Southern Electricity Power Distribution Plc (SSES)		
Scottish Power Energy Networks (SPEN)		SGN
SP Distribution Plc (SPD)		Scotland Gas Networks Plc
SP Manweb Plc (SPMW)		Southern Gas Networks Plc
Western Power Distribution (WPD)		Wales and West Utilities Ltd (WWU)
Western Power Distribution (East Midlands) Plc (EMID)		
Western Power Distribution (South Wales) Plc (SWALES)		
Western Power Distribution (South West) Plc (SWEST)		
Western Power Distribution (West Midlands) Plc (WMID)		
Electricity North West Limited (ENWL)		

## Appendix 10 – 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.

### 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](mailto:dpo@ofgem.gov.uk)

### 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.

### 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.

### With whom we will be sharing your personal data

- Where the disclosure is required by law, statutory direction, court orders, or is necessary for the purposes of RIIO-2 price control.
- Where you give us explicit permission to disclose it.

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

We will retain your personal data for the duration of the RIIO-2 price control plus 6 years.

### 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.

Your personal data will not be sent overseas.

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

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

**More information**

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