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Impact Assessment

RIIO-ED2 Network Price Control Final Determinations Impact Assessment Annex

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We published our Draft Determinations Impact Assessment for the next electricity distribution price control (RIIO-ED2) in June 2022. This set out our assessment of the impacts of our Draft Determination proposals on consumers and network companies under the RIIO-ED2 price control. This Annex updates our Impact Assessment to reflect our Final Determinations.

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1. Summary

1.1 The current RIIO-ED1 network price controls for electricity distribution companies ends in March 2023. The new set of price controls for the sector, RIIO-ED2, are required to be in place for the start of the next price control period on 1 April 2023.

1.2 In December 2019, we made a decision to apply the existing RIIO framework, with targeted changes, for RIIO-ED2. In making this decision, we considered a number of factors, including evidence of the performance of network companies during RIIO-ED1 and reflecting the expected role of the DNOs in delivering the energy system transformation required to deliver net zero.

1.3 We have updated the analysis presented in our Draft Determinations Impact Assessment (IA)[1] to reflect actual values and approaches, as confirmed in our Final Determinations, relative to assumptions and approaches we would have used under the counterfactual. Specifically, our analysis has taken into account:

- The submission of business plans by network companies
- Responses to our Draft Determinations consultation
- The proposed revenue allowances as set out in Final Determinations documents
- Final Determinations relating to changes to incentives, eg number and types of outputs and totex incentive rates
- New areas of analysis, reflecting changes to methodologies, which have been applied at Final Determinations (including changes to ODI parameters)
- External developments, such as government targets for net zero

1.4 In updating the IA for the factors described above, we have followed the same approach as taken in previous iterations (the draft IA published as part of our Sector Specific Methodology Decision (the SSMD IA) and the Draft Determinations IA) by measuring the relative impact of our Final Determinations against the counterfactual. We set out the counterfactual in our SSMD IA as the continuation of the RIIO-ED1 framework, with no material changes to the tools used or overall proposals made.

[1] RIIO-ED2 Draft Determinations Impact Assessment, https://www.ofgem.gov.uk/sites/default/files/2022-06/RIIO-ED2%20Draft%20Determinations%20Impact%20Assessment.pdf

1.5 We have considered both the qualitative and, where possible, quantitative impacts of our Final Determinations relative to the defined counterfactual.

1.6 Based on the analysis presented in this IA, and in previous documents, we believe our decisions represent the most effective option for the next regulatory period as they offer:

- Lower allowed return on capital, aligned with updated evidence including the latest market data
- Incentive strength tailored to the environment of considerable information asymmetry and uncertainty facing the sector
- Protections for consumers and companies against material deviations from ex-ante expectations, forecast and benchmarking errors
- Higher quantified consumer benefit compared to the counterfactual.

1.7 We acknowledge that our decisions present some risk and uncertainty around how network companies may respond in practice to some of the tools we are introducing (eg risk of companies reducing efficiency cost savings, and reducing incentives for innovation) and how this will affect both consumers and DNOs.

1.8 These risks are at least partly mitigated through:

- Enhanced stakeholder engagement to place more scrutiny over companies' cost projections and outputs
- An increase in the use of in-period uncertainty mechanisms and other controls to ensure that company expenditure better aligns with changes in demands and actual company delivery
- Maintaining a higher-powered incentive framework, focused on the key service areas that matter to customers
- The introduction of Return Adjustment Mechanisms (RAMs) to provide symmetrical upside and downside protection for both consumers and companies.

2. Introduction

Scope of this Impact Assessment and summary of the expected impacts on consumers and network companies

2.1 This Impact Assessment (IA) sets out our final view of the impact of our Final Determinations (FD) for RIIO-ED2. It updates the Draft Determinations Impact Assessment published in June 2022 (the DD IA) and is consistent with the methodology applied to previous iterations, including the draft Impact Assessment[2] published in August 2020 in support of our Sector Specific Methodology Decision[3] (SSMC) for the RIIO-ED2 price control (the SSMD IA).

2.2 This FD IA assesses whether the changes in methodologies, tools and parameters under the options proposed for RIIO-ED2 provide good value for consumers. The expected impact of those options on consumers and network companies were measured in previous iterations relative to the defined RIIO-1 counterfactual and based on a transparent set of assumptions which were set out in the previous IAs. This final IA updates that analysis presented in the DD IA to reflect the actual values and approaches as set out in our Final Determinations.

2.3 Over the five-year RIIO-ED2 period, we expect our Final Determinations to deliver net benefits to consumers of up to £428m, relative to the counterfactual. The dominant quantified effect arises from a resetting (lowering) of the cost of equity to current market rates, which drives a large transfer from investors to consumers, compared to the counterfactual. The £428m consumer benefits value is lower compared to that assessed in the DD IA given changes in market conditions (higher interest rates) that influence the cost of capital and higher totex allowances proposed for each of the companies.

2.4 There are different ways consumer benefits can be calculated. In this IA, the values are expressed in Net Present Value (NPV) terms relative to the defined counterfactual. Our bills impact calculation results in an average of £4.82 benefit per consumers arising from our determinations. This estimate is derived using a different method. Since consumers care about how bills are changing over-time

[2] RIIO-ED2 Initial Impact Assessment, https://www.ofgem.gov.uk/sites/default/files/docs/2020/08/riio-ed2_impact_assessment_0.pdf
[3] RIIO-ED2 Sector Specific Methodology Decision (SSMD), https://www.ofgem.gov.uk/sites/default/files/docs/2020/12/ed2_ssmd_overview.pdf

(not only as a result of changing the RIIO price control), we estimate bill impacts based on the net change in overall revenues in Final Determinations relative to expected RIIO-ED1 outturn positions.

2.5 In this IA, the assessed changes in the totex incentive rates for RIIO-ED2 are also expected to result in net benefits to consumers. To assess how network companies may respond to changes to the totex incentive rates, we continue to model three different cases: low, central and high.

2.6 Our assessment of quantified impacts also includes changes to methodologies used for estimating allowed totex expenditure, including the two types of efficiency challenges set for the companies (catch-up and ongoing efficiency). We would expect these changes to result in a net benefit to consumers.

2.7 The impacts set out in this IA reflect a partial quantified assessment of our Final Determinations. Several of the impacts we analyse are difficult to quantify due to the lack of data or the nature of the mechanisms considered. However, we have quantified the changes that we expect to have the largest, material impact on consumers and network companies.

2.8 We note that the impact on companies' revenues is slightly higher compared to the impact on consumers. This is due to the asymmetric impact from changes to the totex incentive mechanism, which reduces companies' revenues more than the expected benefit to consumers.[4]

Scope of this IA

2.9 The analysis in this IA focuses on the impacts of our preferred option only, as chosen at the SSMD stage. The benefits and costs to consumers and companies identified in this IA are relative to the assumptions and approaches we would have set under the RIIO-ED1 counterfactual. Since we decided a preferred option at sector methodology stage, analysing the impact of other options is out of scope in this IA and we focus on the expected impacts of our Final Determinations.

2.10 We are publishing this IA in support of our Final Determinations for RIIO-ED2. This IA provides an assessment of key impacts associated with the decisions made in our Final Determinations.

[4] We explain the reasons for this impact in more detail in Chapter 2 of this document.

2.11 The relevant sections of the main Final Determinations documents and associated appendices, alongside our previous IAs,[5] should be referred to for the detailed evidence and rationale supporting each of the decisions and, where relevant, any assumptions and calculations we have used to inform this IA.

2.12 The IA has been updated to reflect actual values for areas including baseline totex allowances, key regulatory finance parameters including the cost of capital, incentive rates, and catch up and ongoing efficiency. It also reflects our approach to calibrating incentives and managing uncertainty.

Approach to updating this IA

2.13 This IA replicates the methodology and format used in the Draft Determination IA. The main difference is that we apply that methodology to assess the impact of our Final Determination decisions instead of our Draft Determination proposals.

2.14 The RIIO-ED2 Impact Assessment has been a process that started with the publication of our RIIO Framework Decisions and Specific Sector Methodologies Decisions and then our Draft Determinations. We are now publishing our Final Determinations and this document updates our views of the impacts that our decisions (based on the preferred option as set out in the SSMD) will have on consumers and network companies (compared to the counterfactual of maintaining the same RIIO-1 tools and methodologies).

2.15 For example, in the SSMD IA we used a number of forecasts and predictions for what would be RIIO-ED2's main parameters. Now we can update our views on totex, cost of capital, incentives strength and other parameters with the actual figures in the Final Determinations. Regulatory Asset Value and other measures that will depend on performance during the price control period have been updated with the latest run of the Price Control Financial Model (PCFM) and other parameters in line with our Final Determinations.

2.16 Finally, compared to ED1, we have added a number of new tools for incentivising network companies to deliver some specific outcomes. Those new incentives aim to protect vulnerable consumers through the cost-of-living crisis, improve service delivery for major connections customers and enable a flexible low carbon

[5] As per footnote 1 plus https://www.ofgem.gov.uk/sites/default/files/docs/2020/08/riio-ed2_impact_assessment_0.pdf

transition. As we do not have historical data on performance for these new incentives, we have not monetised their impacts and have focused our analysis on the rationale for intervention and the expected outcomes.

Structure and content

2.17 The remainder of this document sets out our analysis of the impact of the options we considered for the next price control period. The document is structured as follows:

- Chapter 1 provides some background to the Final Determinations, including areas that have been updated since our SSMD and/or new policy areas.
- Chapter 2 describes the main impacts on consumers and network companies of our Final Determinations.
- Chapter 3 summarises consumer bill, distributional and other impacts.
- Chapter 4 sets out our view of the main risks and uncertainties associated with our updated assessment.

Summary: Interventions and Options

What is the problem under consideration? Why is Ofgem intervention necessary?

2.18 The current RIIO-ED1 price control ends on 31 March 2023 and Ofgem needs to set the RIIO-ED2 price control covering the five-year period from 1 April 2023 to 31 March 2028. The overall RIIO-2 programme commenced in March 2018 with an initial Framework Consultation for the first set of RIIO-2 price controls starting in April 2021 (the transmission and gas distribution sectors and new price control for the Electricity System Operator (ESO)). At that stage, we evaluated the performance of RIIO-1, identified the need for change and set out the key principles and objectives for those RIIO-2 price controls. The subsequent sector specific methodologies, which were set in May 2019, confirmed the choices of regulatory tools that we would apply for the setting of those controls. Business plans were submitted during 2019 by the relevant network operators and then determinations made by Ofgem during the course of 2020 and, where appropriate,

updated to reflect the outcomes of appeals to the Competition and Markets Authority (CMA) during 2021.

2.19 The RIIO-ED2 price control, starting two years later in April 2023, has been subject to a separate process. Following the publication of an Open Letter,[6] the Framework Decision was made in December 2019.[7] During 2020, we consulted and then decided on the methodology for applying that framework to the electricity distribution networks during RIIO-ED2.[8] The methodology for Regulatory Finance elements was subsequently confirmed in March 2021,[9] and was supported by an updated draft IA.

2.20 Each of the Distribution Network Operators (DNOs) submitted their final RIIO-ED2 Business Plans in December 2021. Following our assessment of these business plans, in June 2022 we published our Draft Determination proposals for consultation based on our assessment of these plans.

2.21 We are now making our Final Determinations based on stakeholder responses to our Draft Determinations and consideration of all other relevant information and data. Accordingly, this IA has been updated to reflect the evidence presented in the business plans, and the responses received to our Draft Determination proposals. It reflects the actual values and approaches, as decided in our Final Determinations, relative to assumptions and approaches we would have set under the RIIO-1 counterfactual.

What are the policy objectives and intended effects including the effect on Ofgem's Strategic Outcomes?

2.22 Ofgem's principal objective in carrying out its functions is to protect the interests of existing and future electricity and gas consumers. In pursuit of this objective, we must have regard to a number of factors, including:

- The need to secure that, so far as it is economical to meet them, all reasonable demands in Great Britain for gas conveyed through pipes are met

[6] Open Letter Consultation on the RIIO-ED2 Price Control, https://www.ofgem.gov.uk/publications/open-letter-consultation-riio-ed2-price-control
[7] RIIO-ED2 Framework Decision, https://www.ofgem.gov.uk/publications/riio-ed2-framework-decision
[8] RIIO-ED2 Sector Specific Methodology Decision, RIIO-ED2 Sector Specific Methodology Decision | Ofgem
[9] RIIO-ED2 Sector Specific Methodology Decision Finance Annex, RIIO-ED2 Sector Specific Methodology Decision Finance Annex | Ofgem

- The need to secure that all reasonable demands for electricity are met
- The need to secure that licence holders are able to finance the activities which are the subject of obligations on them
- The need to contribute to the achievement of sustainable development
- The interests of individuals who are disabled or chronically sick, of pensionable age, with low incomes, or residing in rural areas.

2.23 These duties are reflected in our objectives for the RIIO-ED2 price control.[10] ED2 objectives, as set out in the Final Determinations Overview Document, include ensuring that the DNOs can support the delivery of government climate change ambitions at lowest cost to consumers, deliver high-quality network services to current and future energy consumers, and support the transition to a smarter and more flexible and digitally enabled energy sector, while ensuring no consumer is left behind in this transition.

What are the policy options that have been considered, including any alternatives to regulation?

2.24 In our SSMD, the draft IA considered four main options for setting the methodology for RIIO-ED2. To reflect our decision at SSMD to proceed with a number of targeted changes to the RIIO framework, in this IA we only present our assessment of the impacts of the SSMD preferred option against the counterfactual.

- **Option 1: Do nothing counterfactual ('RIIO-1'):** involves using mechanisms and performance target levels applied in RIIO-ED1, with allowances and outputs reset to reflect most recent data.
- **Option 2: Preferred option, targeted changes:** involves more significant changes such as the introduction of new mechanisms (and removal of mechanisms) in addition to recalibration of existing mechanisms to result in a fairer risk reward balance.

[10] RIIO-ED2 Draft Determinations – Core Methodology Document paragraph 1.15, https://www.ofgem.gov.uk/sites/default/files/2022-06/RIIO-ED2%20Draft%20Determinations%20Core%20Methodology.pdf

Preferred option - Monetised Impacts (£m)

Summary of quantified impacts	
Business Impact Target Qualifying Provision	Non-Qualifying
Business Impact Target	Not Applicable
Net Benefit to Great Britain (GB) Consumer Direct consumer Net Present Value (NPV) figures represent the direct impact on energy consumers compared to counterfactual over the next price control period. When we include the switch to CPIH the direct benefits are negative. However, over the long term, the impact of the CPIH switch is zero and should not be included in the NPV[11].	Direct benefits excluding switch to CPIH: **£433m** Direct benefits including switch to CPIH: **-£886m**
Impact on network companies' **Revenues** Direct wider impacts include the direct revenue impact on network companies and administrative costs for companies compared to counterfactual over the next price control period	Direct benefits excluding switch to CPIH: **- £442m** Direct benefits including switch to CPIH: **£876m**

Explain how the Net Benefit was monetised, NPV or other

NPV is calculated over the next regulatory period (5 years), from 2023/24 to 2027/28, using a discount rate of 3.5% (as per HM Treasury Green Book guidance). Costs and benefits are in 2023/24 financial year prices and have been inflated using CPIH indexation.

Some costs and benefits are hard to monetise and would arise beyond the next regulatory period. These are considered qualitatively.

We note that the switch from the Retail Price Index (RPI) to Consumer Prices Index including Owner Occupiers' Housing Costs (CPIH) for indexation of the regulated asset value and allowed returns should be value-neutral to both investors and consumers in the long-run (consumers will be neither worse off nor better off). However, it does affect the timing of repayment of the Regulatory Asset Value (RAV),[12] meaning that it reduces consumer benefits within the next regulatory period.

[11] While the scope for assessing most RIIO ED2 policies relates to the next five years, the switch to CPIH would be permanent.

[12] 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.

Our estimates of costs and benefits are indicative and are subject to uncertainty, in particular in relation to how companies might respond to the incentives provided under our preferred option. We have undertaken scenario analysis to consider the impacts of different potential responses.

Preferred option - Hard to Monetise Impacts

We have performed a partial quantification for some of the components of our preferred option while others are considered qualitatively. In particular, we have not quantified in this IA impacts arising from changes to informational incentives, innovation, competition and the impact on the environment. These have been considered in the previous IA and the evidence from business plans does not affect the previous assessment of these hard to monetise impacts. For these impacts, we present a summary of the previous assessment.

Key assumptions/sensitivities/risks

Several impacts we analyse are difficult to quantify due to the lack of quantitative data or the nature of the mechanism considered. However, we have quantified the decisions that we expect to have the largest impact on companies and consumers. We have applied a number of assumptions concerning the expected performance of DNOs in the next regulatory period in light of the final totex incentive rates. Our quantitative estimates are based on some theoretical assumptions and should be considered indicative of possible outcomes across different scenarios. Overall, we consider that the potential for significant consumer benefit resulting from our Final Determinations outweighs the risk associated with them.

Will the policy be reviewed?	**If applicable, set review date:**
Yes	For the next set of network price controls due to start in April 2026

3. Background to our Final Determinations

This chapter provides policy context and background to this IA. We have updated the introductory sections of previously published versions to take account of our Final Determinations. As with our previous IAs, we focus on the most significant changes, and refer to the Final Determinations Overview, Core Methodology, Finance Annex and Company Specific Annex documents for the rationale and supporting evidence for decisions that do not represent a major change from the counterfactual. These are changes that would have taken place under the counterfactual and form part of lessons learnt and adjustments made through each successive price control.

Rationale for intervention

3.1 The activities undertaken by energy network companies present the features of a "natural monopoly".[13] The presence of a natural monopoly leads to a market failure whereby the monopoly firm might exploit its "market power" and charge consumers an excessively high price or produce poor quality outputs. Ofgem uses price controls to limit what companies can charge to use their networks and to encourage firms to produce outputs that consumers value.

Problem under consideration

3.2 The current RIIO-ED1 regulatory framework to date has delivered well for consumers, especially in terms of some specific outputs, such as reliability and service quality. Energy networks deliver high levels of reliability and consumers are highly satisfied with the service provided by local network operators. There is also evidence that DNOs are increasingly deploying innovative solutions in managing their networks. Further detail on performance can be found in our Annual Reports, the latest of which covers the regulatory year to March 2021.[14]

3.3 Ofgem has assessed the overall financial performance of network companies during the RIIO-1 price controls using a measure called the Return on Regulatory Equity (RoRE). RoRE is an estimate of the financial return achieved by regulated companies' shareholders during a price control period based on actual (and

[13] Decker, C. (2015). Modern Economic Regulation: An Introduction to Theory and Practice. Cambridge: Cambridge University Press. doi:10.1017/CBO9781139162500 pages 14-15.
[14] RIIO-1 Electricity Distribution Annual Report 2020-21, https://www.ofgem.gov.uk/publications/riio-1-electricity-distribution-annual-report-2020-21

forecast) performance. It is a useful way to gain an overall picture of how regulated companies have been performing under the price control.

3.4 Measured in terms of operational RoRE (which excludes debt and tax performance), a number of the DNOs have been achieving close to double digit returns in real terms throughout the RIIO-ED1 price control period. This is shown in Table 1, below.

Table 1: Operational RoRE[15] under RIIO-ED1

Company	**Operational RoRE**	
	Cumulative to 2020	**RIIO-ED1 forecast**
ENWL	10%	10.5%
SPEN	6.4%	6.1%
NPg	8.1%	8%
SSE	7.2%	6.2%
UKPN	10.1%	9.2%
NGED	9.9%	9.5%

Source: Ofgem RIIO-1 Electricity Distribution Annual Report 2020-21

3.5 There are a number of factors driving this performance. Some of this performance is because of greater efficiency, good performance against targets or companies innovating to cut costs. However, systematic outperformance may also indicate that companies have been set allowances and targets that were easier to outperform than anticipated. This may arise because the presence of "information asymmetry"[16] between the regulator and regulated companies can create incentives for companies to act strategically, for example by misrepresenting information, such as overstating costs.[17]

[15] Operational RoRE excludes debt and tax performance.

[16] Companies' informational advantage in utility regulation has been widely acknowledged in the academic literature, especially in the case of ex-ante price regulation regimes. This is emphasised in a paper published by the UK Regulators Network (UKRN) on cost of capital. The paper suggests that regulators should consider the impact of information asymmetry when determining companies' cost of capital.

[17] See C. Decker (2015), Modern Economic Regulation, An introduction to theory and practise, page 86, section 4.4.

3.6 As Table 1 shows, returns received by network companies have been higher than Ofgem expected when the RIIO-ED1 price controls were set. Beyond potential efficiency improvements, two broad underlying factors have contributed to higher-than-expected returns:

- We need to estimate the cost of financing these companies, which is the returns that they pay to investors. Observed market evidence shows that these costs have decreased and remained low since the parameters for RIIO-ED1 were set and supports our view that the cost of capital for the next regulatory period should be lower.
- We face significant uncertainty and are at an informational disadvantage relative to the companies when estimating the cost of implementing their business plans, and the effort required to achieve delivery targets. This creates a tendency towards allowed costs being over-inflated, with incentive mechanisms being set too high. Our analysis[18] suggests that information asymmetry is a contributor to the higher level of returns seen in RIIO-ED1.

3.7 A review of RIIO-1 conducted by CEPA[19] for Ofgem supports our view that the returns the companies earned did not reflect their overall risk exposure. This suggests we need to re-balance the risk and reward profile for RIIO-ED2, ensuring that the networks can support the decarbonisation of the economy and that customers continue to benefit from high levels of service quality but at lower cost.

3.8 For RIIO-ED2, we are responding to these challenges through a range of new mechanisms that will help support a better balance of risk and return between consumers and companies. These mechanisms included setting the cost of equity in line with market evidence, the introduction of confidence dependant incentive rates (sharing factors), greater use of indexation tools rather than forecasting, and the introduction of RAMs.

3.9 Some of these mechanisms correct for factors that contributed to the levels of outperformance seen under the RIIO-1 price controls. The introduction of RAMs provides a new automatic correction mechanism that is expected to protect both consumers and investors against ex post overall returns deviating significantly from ex-ante expectations. While the impact of these mechanisms cannot be

[18] RIIO-ED2 SSMC Impact Assessment, Chapter 1, https://www.ofgem.gov.uk/sites/default/files/docs/2020/08/ed2_ssmc_late_competition_ia_0.pdf
[19] CEPA (2018), Review of the RIIO framework and RIIO-1 performance, https://www.cepa.co.uk/images/uploads/documents/cepa_review_of_the_riio_framework_and_riio-1_performance.

quantified, they are collectively expected to deliver greater levels of protection for consumers and investors through a reduction in risk.

Summary Description of RIIO-ED2

3.10 We have considered potential changes to the RIIO-ED1 framework to address the problems outlined above. The issues identified are relatively similar to those affecting the other energy networks. As a result, most of the changes we identified broadly align with those we have introduced for the RIIO-2 price controls in other sectors that were set in December 2020[20] and commenced on 1 April 2021.

3.11 We have also considered key strategic issues that could impact the RIIO-ED2 price control and may require specific changes, including the need to respond to the energy crisis, through:

- Supporting the delivery of government's climate change ambitions, including the transition away from our high dependence on imported fossil fuels towards homegrown, cleaner, cheaper and more secure sources of energy
- Creating a smart and flexible, more digitally enabled energy system, maximising innovation and the use of smart and flexible technologies and encouraging new approaches to managing local systems
- Delivering value for money services for consumers, improving the networks' resilience and response to extreme weather events, improving customer service and providing additional protections for consumers living in vulnerable circumstances
- Keeping costs as low as possible by avoiding unnecessary increased network charges on consumer bills

3.12 To identify these changes, in our SSMD IA we considered the following factors:

- Theoretical considerations of alternative regulatory regimes on a spectrum from the RIIO framework of ex-ante incentive-based regulation as applied in the existing price controls to ex post rate of return regulation.
- Accepted best regulatory practices, in particular:

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

    - Targeted incentives: Incentives should apply only to factors that are under the network companies' control, otherwise there is a risk of windfall gains or losses that are not due to company performance.
    - Risk allocation: Risks should be allocated to the parties best placed to manage them.
    - Proportionate risk/reward balance: The price control package should be calibrated so that baseline returns are consistent with the level of risk that network companies are exposed to.
- Identification of what policy choices, where we have more than one, are mutually exclusive and where they would fit along the spectrum from no change to major changes presented in the four options.
- Evidence of the effectiveness of various mechanisms used by Ofgem and other regulators in previous price controls.
- The wider economic, technological and policy context.

3.13 Through the RIIO-ED2 framework and our Sector Specific Methodology Consultation (SSMC) and SSMD, we assessed several options that could resolve the challenges described above. We decided to keep our ex-ante incentive led RIIO price control framework supported by targeted changes to improve the working of the price control and rebalance the weight of risks and rewards in favour of consumers.

3.14 For RIIO-ED2, we are maintaining strong incentives in the areas that matter most to consumers (for example, reliability, customer service, connections) aligning the power of the incentives available with delivery targets and our confidence in company costs (for example, a reduction in the overall incentive rate or sharing factor). This will serve to reduce the benefits gained by companies through the Business Plan process (confidence-dependent incentive rate, Business Plan Incentive (BPI)) and increase the share of underperformance or outperformance currently borne by consumers (through RAMs). We have also introduced new incentives and mechanisms to foster investments in low carbon technologies to reflect net zero targets, including major connections, and to support new approaches to managing local systems (Distribution System Operation (DSO)).

3.15 We describe these changes in Table 2.

Table 2: Key features of the options considered by Ofgem

Area of regulatory framework	**Option 1: Do nothing ('counterfactual')**	**Option 2: Targeted changes**
Enhanced stakeholder engagement	Effective stakeholder engagement underpinning business plans incorporated in fast-track incentive. No prescriptive description setting out what we mean by "effective".	Effective stakeholder engagement underpinning Business plans, with clear explanation of what "effective" means and assessed as part of the BPI. Plus: RIIO-ED2 Challenge Group DNO Customer Engagement Groups Open Hearings Ofgem Net Zero Advisory Group.
Financial parameters	RIIO-ED1 values for: Baseline allowed return on capital Notional gearing Indexing RAV and allowed returns to RPI	Allowed return on capital, including: Allowed returns on debt Allowed returns on equity, including application Capital Asset Pricing Model (CAPM), and market cross checks Indexing RAV and allowed returns to CPIH.
Informational Incentives	Early settlement Fast-tracking reward IQI	No early settlement. BPI with rewards and penalties. Confidence-dependent Incentive Rate approach.
Operational Incentives	Totex approach	Totex approach with appropriate controls, including use of uncertainty mechanisms and price control deliverables.
Totex Incentive Mechanism (TIM)	Totex incentive rate similar to RIIO-ED1 set using the Information Quality Incentive (IQI)	Lower totex incentive rate than in RIIO-ED1, set using the confidence-dependent incentive rate approach. Defined use of price control deliverables.
Output incentives	Output incentives as per RIIO-ED1	Reset output targets to reflect improvement in performance and learnings from RIIO-ED1.

Area of regulatory framework	**Option 1: Do nothing ('counterfactual')**	**Option 2: Targeted changes**
	Reset output targets to reflect improvement in performance and learnings from RIIO-ED1	Remove incentives and replace them with better defined standards of performance. Recalibrate output targets and incentive rates (eg changing caps/collars, incentive rates and target setting methodology). Dynamic or relative targets for Output Delivery Incentives (ODIs), where appropriate. Bespoke outputs, where supported by enhanced engagement.
Other – Innovation	Network Innovation Allowance (NIA) Network Innovation Competition Innovation Rollout Mechanism	Carry-over NIA funding from ED1. Opportunity for RIIO-2 new NIA allowances. Creation of new Strategic Innovation Fund (SIF), targeted at key energy system strategic challenges.
Other – Competition	No early/late competition	Early/late competition where appropriate.
Other – length	8 years	5 years
Risk allocation and uncertainty tools	Same types of uncertainty mechanisms used in RIIO-1	Same type of uncertainty mechanisms used in RIIO-1. Indexation of RPEs. Return Adjustment Mechanism.

Updating the analysis in our SSMD IA

3.16 In the SSMD IA, we assessed the key impacts of our policy options against several alternatives. Whereas our view of the qualitative assessment remains broadly unchanged, some of the quantified impacts need updating. In the SSMD IA, we made a number of assumptions about the expenditure plans to be submitted by network companies and our views of the main financial parameters, at that time.

3.17 In December 2021, we received the final Business plans from the DNOs and, following our assessment, can now update many of the assumptions and working assumptions for our Final Determinations.

3.18 Consistent with the approach taken in our Draft Determinations IA, we have updated our assessment with our decisions on totex allowances, uncertainty mechanisms, inflation and the use of indexation, our decision on the cost of capital, and the parameters for setting operational incentives and ODIs.

4. Impacts on companies and consumers against the counterfactual

In this chapter, we present our updated analysis of the direct impacts on consumers and network companies compared to the counterfactual based on RIIO-ED1. Where possible, we present quantified or partially quantified impacts. In other areas, we consider the impacts using non-quantitative approaches.

Summary of impacts

4.1 This chapter updates the analysis from our Draft Determinations IA and presents our revised assessment of the impact of our Final Determinations on companies' revenues and on energy consumers arising from:

- Changes to financial parameters
- Changes to incentives
- Changes to other elements of the RIIO-ED2 frameworks
- Administration and resource costs

4.2 The assessment of other elements of the price control such as the impact of introducing new forms of competition or tools for promoting innovation remain broadly consistent with that presented in the SSMD IA and have not been updated because they are not affected by the information submitted in the business plans.

Summary of impacts on consumers

4.3 Our assessment concludes that consumers are expected to benefit by approximately £428m (excluding the switch to CPIH) under our central case compared to the counterfactual. As in the Draft Determinations IA, we note that most of the expected quantified impacts on consumers arise from a transfer from companies to consumers due to changes to the allowed return on equity.

4.4 We note that the switch from the RPI to CPIH for indexation of the RAV and allowed returns will be value-neutral to both investors and consumers in the long-run (consumers will be neither worse off nor better off). However, it does affect

the timing of repayment of the RAV,[21] meaning that it will reduce consumer benefits within the RIIO-ED2 period and increase it in subsequent periods.

Summary of impacts on companies

4.5 We summarise below the estimated impacts on consumers and company revenues. We define the impact on company revenues as the change in rewards earned by companies linked to performance against allowance and targets during the RIIO-ED2 period. These impacts may be different from the impact on allowed revenues during RIIO-ED2 due to the way some of the rewards are treated under the price control mechanisms.

4.6 We estimate that company revenues would decrease by approximately £428 million (central case), compared to the counterfactual, over a five-year period.

Table 3: Impact on consumers compared to counterfactual - quantified and non-quantified impacts, net present value over a five-year price control (£m 2023/24 (CPIH))

Area of package	Mechanism	Option 3	Option 3 Range	
			Low impact	High impact
Changes to financial parameters	Return on capital	**245**	**245**	**245**
		Network companies will receive lower returns on invested capital.		
	Switch to CPIH	**-1,319**	**-1,319**	**-1,319**
		This change will be value-neutral to both investors and consumers in the long-run (ie consumers will be neither worse off nor better off) but does affect the timing of repayment of the RAV. This means the consumer benefit is negative within next regulatory period but will be positive after about twenty years.		
Changes to incentives	Totex Incentive Mechanism and informational tools	**6**	**2**	**11**
		The impact from changes to informational tools is uncertain. However, we have obtained similar sharing factors compared to ED1 and this would produce similar outcomes.		
	Output Delivery Incentives	**130**	**121**	**174**

[21] 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.

		Consumers will benefit from tying network company expenditure (totex allowances) more closely to delivery. This would reduce uncertainty around some outputs associated with PCDs		
	Price control deliverables	Consumers will benefit from tying network company expenditure (totex allowances) more closely to delivery. This would reduce uncertainty around some outputs associated with PCDs		
Changes to other elements	Return adjustment mechanisms	**52**	**52**	**0**
		RAMs may be triggered under some scenarios considered. RAMs are expected to protect consumers and investors against ex post overall returns from network price controls deviating significantly from ex-ante expectations.		
	Length of price control	Consumers will benefit from lower risk of forecasting inaccuracies. However, there could be some negative impact on longer-term planning from companies.		
	Innovation funding	Similar outcomes to RIIO-1 but more targeted to the energy system transition and addressing consumer vulnerability. DD would allow innovation funding to be much more flexible to respond to unanticipated needs.		
	Competition	Where opportunities are identified to introduce competition into projects, consumers may benefit from additional cost and service efficiencies within the price control period. Future consumers also stand to benefit from better information revealed by prices that are set competitively.		
Administration costs		Additional costs for the regulator and for companies to manage the new tools that may be passed onto consumers. These are likely to be marginally higher under option 2 given introduction of additional tools.		
Total quantified impacts		**-886**	**-899**	**-889**
Total, not including switch to CPIH		**433**	**420**	**430**

Table 4: Impact on network companies compared to counterfactual - quantified and non-quantified impacts, net present value over a five-year price control (£m 2023/24 (CPIH))

Area of package	Mechanism	Option 3	Option 3 Range	
			Low impact	High impact
Changes to financial parameters	Return on capital	**-245**	**-245**	**-245**
		Network companies will receive lower returns on invested capital.		
	Switch to CPIH	**1,319**	**1,319**	**1,319**
		This change will be value-neutral to both investors and consumers in the long-run (i.e. consumers will be neither worse off nor better off) but does affect the timing of repayment of the RAV. This means the consumer benefit is negative within next regulatory period but will be positive after about twenty years.		
Changes to incentives	Totex Incentive Mechanism and informational tools	**-16**	**-20**	**-11**
		The impact from changes to informational tools is uncertain. However, we have obtained similar sharing factors compared to ED1 and this would produce similar outcomes.		
	Output Delivery Incentives	**-130**	**-121**	**-174**
		In addition to removal of some incentives, re-calibration may change risk/reward balance potentially reducing delivery of outputs in some areas		
	Price control deliverables	Some of the more mechanistic PCDs may offer less flexibility to deliver certain outputs by network companies. However, the PCD framework is flexible to accommodate the need for innovation and the uncertainty associated with delivery net zero.		
Changes to other elements	Return adjustment mechanisms	**-52**	**-52**	**0**
		RAMs may be triggered under some scenarios considered. RAMs are expected to protect consumers and investors against ex post overall returns from network price controls deviating significantly from ex-ante expectations.		
	Length of price control	Five-year price control length may reduce exposure of companies to risk but also reduces the extent to which they can benefit from delivery of efficiency gains		

	Innovation funding	It is not possible to assess the impact on revenues for network companies from innovation mechanisms. These mechanisms have been designed to be highly flexible and respond to a number of contingencies and future uncertainties. However, the scope for innovation funding is greater than it was in ED1		
	Competition	Introduction of competition may drive down company allowed revenues, though extent of effect will depend on the number of projects that are found suitable for competition models		
Administration costs		Some additional costs for companies to manage new and revised tools. These are likely to be higher under option 3 given introduction of additional tools. However, materiality is expected to be of a lower order of magnitude than many of the other impacts considered in this draft IA.		
Total quantified impacts		**876**	**881**	**889**
Total, not including switch to CPIH		**-442**	**-438**	**-430**

4.7 We note that our estimates of the impacts related to changes in the totex incentive rate disregard the slow money component of totex[22]. Some of this money would have been added to the RAV and would be recovered over a longer time period. Therefore, the estimate in the table above on the impact on companies should be considered an overestimate of the impacts arising from changes to the methodologies for estimating totex.

4.8 The estimates above have also been obtained by replacing previous forecasts for totex and RAV as used in our SSMD draft impact assessments. The new figures follow the latest decisions in our Final Determinations.

4.9 Other changes are the cost of capital allowances and some of the parameters used in setting ODIs. Otherwise, our quantified impacts follow the same methodology as in the Sector Specific Methodology assessment.[23]

[22] Slow money is where costs are added to the RAV and therefore revenues are recovered slowly (eg over 20 years) from both existing and future consumers.
[23] RIIO-ED2 Draft Determinations Impact Assessment, Chapter 3, https://www.ofgem.gov.uk/sites/default/files/docs/2020/08/riio-ed2_impact_assessment_0.pdf

Table 5. Comparison between Final Determinations and Draft Determinations Impact Assessments.

Assumptions	**Final Determinations**	**Draft Determinations**
RIIO-1 final year RAV (£m 12/13 prices)	25,910	21,205
RAV growth from RIIO-1 end to midpoint of RIIO-2 (%)	1.093	1.083
RIIO-2 midpoint RAV (£m 12/13 prices)	28,321	22,955
Indexation impact from 12/13 prices (RPI) to 23/24 prices (CPIH)	(1,318.8)	-988
RIIO-2 RAV assumption (£m 23/24 prices, RPI)	42,837	33,166
RIIO-2 allowed return on capital assumption (12/13 prices real RPI)	3.21%	2.54%
Counterfactual allowed return on capital assumption (real RPI 12/13)	3.34%	3.34%
Long term CPIH/RPI wedge assumption	0.70%	0.7%
Sharing factors (Central Scenario)	49.8%	49.8%
Interruptions Incentive Scheme	Cap 1.5% Collar 2.5%	Cap 1% Collar 2.5%

4.10 Table 5 summarises the differences between our Final and Draft Determinations IAs which are expanded further in the remainder of this chapter:

- Totex actual, totex allowances and RAV for RIIO-1 have been replaced using the latest figures in November 2022. There is a small increase compared to Draft Determinations.
- RIIO-ED2 RAV has been replaced by a provisional run of the PCFM carried out in November 2022 using the parameters above.
- Cost of capital provisional parameters in Draft Determinations have been replaced by Final Determinations figures.

- Inflation follows the same assumptions as Draft Determinations based on projections by the Office for Budget Responsibility (OBR).[24]
- Sharing factors have been adjusted but remain almost the same as in Draft Determinations. We have revised the calibration of the Interruptions Incentive Scheme (IIS). Our final determination is to introduce an asymmetric cap for RIIO-ED2 with an upside cap of 150bps and downside collar of 250bps of RoRE.
- We have kept the symmetrical RAMs as in Draft Determinations, with 2 threshold levels: one at 300bps either side of the allowed return on equity with 50% adjustment rate; and the other at 400bps either side of the allowed return with an adjustment rate of 90%.

4.11 In summary, there is a significant difference of 66bps in the cost of capital allowance between the Draft and Final Determinations IAs, following the same methodology proposed in Draft Determinations but taking into account the changes in market conditions seen since June 2022 including higher interest rates. This accounts for the large change in the impact of financial parameters. In the counterfactual, the cost of capital allowance was 3.34%. In Draft Determinations, it was 2.54% and in Final Determinations, 3.21% (in RPI indexation basis). This represents an 84% reduction from Draft Determinations to Final Determinations with respect of the counterfactual.

4.12 There is a significant increase in the impact of the move from RPI to CPIH due to an increase in totex and adjustments to inflation calculations from Draft Determinations to Final Determinations. The TIM incentive rate is almost the same as in Draft Determinations, based on the proposals to adjust the sharing factors, explained below. Finally, there is a similar impact in ODI payments to networks with exception of IIS due to the increase of the maximum upside from 1% to 1.5% of base revenue. The IIS is discussed in more detail in Chapter 6 of the Core Methodology Document.[25]

[24] Office for Budget Responsibility, Historical Official Forecast Database, 23 March 2022, https://obr.uk/data/.
[25] For ODI we estimate the revenues that companies would be expected to earn from ODIs under three scenarios. These range between a 'low case' in which companies may fail to meet targets and receive penalties in some or a number of areas and a 'high case' in which companies perform well against targets, potentially coming close to the cap on some of the incentives.

Table 6. Sharing factors by network group

DNO Group	ENWL	NPg	SPEN	SSEN	UKPN	NGED
Sharing Factor	49.4%	49.9%	50.0%	49.3%	50.0%	50.0%

4.13 The following sections in this chapter provide more detail on the main impacts identified above.

Impacts from changes to financial parameters

4.14 In our Final Determinations, we have set out our updated analysis on the key financial parameters for RIIO-ED2, including the cost of equity, cost of debt, indexation and regulatory depreciation.

4.15 We refer readers to the draft IA that accompanied our SSMD for transmission and gas distribution for background detail on how we have calculated impacts from changes to financial parameters.[26]

4.16 To estimate the impact of changing the allowed return on capital, and the impact of the switch from RPI to CPIH, we have derived an estimate of RAV from our November 2022 run of the Final Determinations PCFM. This provided a RAV estimate for the mid-point in the price control of £25.6bn (2012/13 prices) which we used to estimate the impact of the changes to the allowed return on capital and the switch from RPI to CPIH, which we describe in the following sections.[27]

Allowed return on capital

4.17 We have followed the approach taken in our Draft Determinations and SSMD IA, where we made assumptions for all sectors, including the ED sector, in order to assess the impact of changes to the allowed return on capital.[28] Accordingly, we

[26] See paragraphs 4.6 to 4.55, https://www.ofgem.gov.uk/system/files/docs/2019/08/ssmd_ia_updated_version_31_july_2019.pdf#page=41
[27] For clarity, the process has involved converting all monetised values to the same basis as the counterfactual (2012/13 on RPI) and back to the 2023/24 CPIH used in this IA.
[28] For further information, see page 41, https://www.ofgem.gov.uk/system/files/docs/2019/08/ssmd_ia_updated_version_31_july_2019.pdf#page=41

multiply the RAV estimate for RIIO-ED2 by the difference in the WACC allowance, as described in our SSMD IA.[29]

4.18 This assumes an allowed return on capital of 2.54% (RPI- real) for RIIO-ED2 and a counterfactual allowed return on capital of 3.34% (RPI- real) based on RIIO-ED1.

Switch from RPI to CPIH

4.19 As stated in the RIIO-ED2 March 2021 SSMD Finance Annex, we expect the change from RPI to CPIH to be NPV neutral in the long-term. However, in isolation, over the next regulatory period, this change will result in an increase in revenues for network companies and a corresponding increase in charges for consumers.

4.20 For the purposes of this IA, we estimate the main impact of this change, which is the impact of the allowed return being increased by the wedge between RPI and CPIH. The inflation wedge is 0.70%,[30] 17 basis points lower than in our SSMD IA (0.97%). This would reduce benefits to consumers by £1,246m in the first five years after the switch but then increase benefits over subsequent price controls (change will be NPV neutral to consumers over the long term). Totex allowances have increased compared to Draft Determinations which in turn increase the impact of the change in indexation approach compared to the Draft Determinations IA.

Impacts from changes to incentives

4.21 Across our Final Determinations, we have decided to make a number of changes to totex allowances and a small adjustment in incentives rates compared to our Draft Determinations proposals. In the following sections, we summarise those changes and how they affect our estimates of impacts.

[29] https://www.ofgem.gov.uk/sites/default/files/docs/2021/03/riio-ed2_impact_assessment_updated_0.pdf
[30] As calculated by Step 1 of the cost of capital methodology in the Finance Annex of this consultation.

Impacts from changes to informational incentives

4.22 In this section, we summarise the policy changes we introduced in our SSMD for the totex incentive mechanism and the move from the IQI to the BPI. We have updated the quantification of the TIM impacts using the parameters set in the Final Determinations Core Methodology Document. However, as identified in our Draft Determinations IA, it remains difficult to make comparisons against the IQI because we cannot accurately assess how networks would have behaved under the counterfactual.

Totex Incentive Mechanism

4.23 Under the TIM, any underspend (or overspend) in comparison to the set totex allowance is shared between the network company and its customers. The proportion companies keep is determined by the totex incentive rate (the sharing factor) while the rest is used to reduce allowed revenues, benefitting consumers through lower bills.

4.24 Companies have an incentive to underspend against their totex allowances because they earn additional revenues according to their totex incentive rates. It is useful to distinguish between cost savings due to genuine efficiencies which result in both company and consumer benefits (through the TIM) and company windfalls due to informational rents which only result in company benefits. Through setting the level of the totex incentive rate, we are seeking to:

- reduce the extent to which consumers pay for company underspends which are not reflective of genuine cost efficiencies, but instead result from information rents
- maintain an incentive for companies to identify and deliver legitimate cost efficiencies where possible

4.25 For RIIO-ED2 the totex incentive rate is determined based on a confidence-dependent approach. Under this approach, we identify the proportion of a company's proposed totex that we consider to be 'high-confidence baseline' costs - these are the costs where we have a high confidence in our ability to independently set a baseline cost allowance. The remaining elements of totex would be considered 'lower-confidence baseline' costs. High-confidence costs are associated with a higher totex incentive rate and low-confidence costs are

associated with a lower totex incentive rate. A single totex incentive rate is determined for each company on a weighted average basis of these two types of costs (further details on the approach for RIIO-ED2 can be found in Chapter 9 of the Overview Document).

4.26 For the purposes of the IA, we need to compare the incentives in our preferred option against the counterfactual. As the sharing factor in RIIO-ED2 is based on our view of which network expenditure is high and low confidence, high confidence in the Business Plans has produced similar sharing factors to the ones in RIIO-ED1.

4.27 The rest of the analysis of the impact of operational incentives follows the same methodology and assumptions that were applied in our SSMD IA, as well as those that were applied for the other RIIO-2 sectors[31]. This approach assumes a reduction in the incentive rate decreases the share of underspend that companies are allowed to retain and, all else equal, benefits consumers as more savings are passed through to them. However, the net impact on companies' revenues and consumers might differ depending on the size of the reduction in the incentive rate. This is because, by changing the rewards earned from efficient performance, a lower incentive rate might affect the companies' behaviour and level of effort put towards efficiency.

4.28 To assess the impact, we continue to structure our analysis around three different 'orders' of effects that might result from a reduction of the totex incentive rate:

- The first order effect is the direct effect of a reduction in the totex incentive rate. A lower proportion of underspends (or overspends) against totex allowances can be retained by companies, while a greater proportion is passed through to consumers. Company revenues resulting from their share of underspends will decrease proportionally with the reduction in incentive rates. Consumers will benefit by an equal and opposite amount to the reduction in company revenues. As a first order approximation, we assume no behavioural response of companies to a lower totex incentive rate, ie the level of underspend against totex allowances remains the same regardless of the totex incentive rate

[31] See chapter 4, Sector Methodology Impact Assessment for a full explanation. https://www.ofgem.gov.uk/sites/default/files/docs/2020/08/riio-ed2_impact_assessment_0.pdf

- As a second order effect, we consider the behavioural response of companies arising from a reduction in the totex incentive rate. A reduction in the totex incentive rate may result in companies investing lower levels of effort in achieving underspends. As an approximation, we assume that all of this reduced underspend reflects a loss of genuine cost efficiencies, while ignoring the potential for a reduction in information rents. Under the second order effect, the initial totex allowance would be the same as under the counterfactual but underspends against this allowance would be reduced. This second order effect results in both lower company revenues and higher costs passed through to consumers when compared to the first order effect. The combined first and second order effects mean that the reduction in company revenues is greater than the increase in consumer benefits due to the overall reduction in underspends
- The third order effect relates to the proportion of underspends which reflects genuine cost efficiencies and the proportion which reflects information rents. Because third order effects are hard to quantify, we assume in our analysis that 100% of the reduction in underspends is due to lower cost efficiencies. In practice, a reduction in totex incentive rates may also change the extent to which companies benefit from information rents, thus changing incentives to report higher spending forecasts for totex. This means that the combination of the first and second order effects underestimate the true benefits for consumers of our decisions.[32]

Table 7: Impact from changes to totex incentive rates, over a five-year price control (£m 2023/24, CPIH, discounted) – first and second order effects[33]

Final Determinations Sharing Factor ~ 50% TIM	**Impact** **£m**
Company revenues	
Mapping[34] 1:0	-12

[32] See Chapter 4 of the SSMC Impact Assessment for a full discussion of third order effects. https://www.ofgem.gov.uk/sites/default/files/docs/2020/08/riio-ed2_impact_assessment_0.pdf

[33] In quantifying the impact on companies' revenues, we have disregarded the distinction between fast money and slow money (ie capitalised into the RAV). We have not modelled this factor in this IA. Therefore, our estimates in the table above should be considered as an overestimate of the impact on companies' revenues.

[34] As there is no reliable evidence on the level of behavioural responses to sharing factors, we model a range of potential responses using different "mapping factors" reflecting the reduction in effort that companies may devote (captured by a % reduction in underspend) in response to

Final Determinations Sharing Factor ~ 50% TIM	**Impact** **£m**
Mapping 2:1	-17
Mapping 1:1	-22
Consumers	
Mapping 1:0	12
Mapping 2:1	7
Mapping 1:1	2

4.29 Table 7 summarises the impacts to networks and consumers. These impacts are much lower than in our SSMD IA because the resulting sharing factors are closer to RIIO-ED1 (a weighted average of 57.9% in RIIO-ED1 and 49.8% in RIIO-ED2). Under the second order effect, we have assumed that the full reduction in underspends reflects lost cost efficiencies. However, a lower totex incentive rate might also reduce companies' incentives to overstate their cost forecasts as the benefits arising from overstated costs would be lower. It also reduces the ability for firms to gain informational rent – some of the second order loss in efficiency may not materialise if the costs actually were overstated. Therefore, a reduction in underspends may represent a combination of reduced information rents and lost cost efficiencies.

Impacts from the BPI

4.30 In RIIO-ED1, Ofgem used two tools to incentivise companies to submit accurate expenditure projections and better-quality Business plans: the Information Quality Incentive (IQI) and fast-tracking.

4.31 Through the IQI mechanism, Ofgem set the totex incentive rate and also provided the opportunity for an upfront reward based on a comparison of companies' totex forecasts against our view of efficient costs.

a % reduction in totex incentive rates. A full explanation of our methodology can be found in sections 4.26 and 4.27 of the SSMD IA, https://www.ofgem.gov.uk/sites/default/files/docs/2020/08/riio-ed2_impact_assessment_0.pdf

4.32 In addition to the IQI, fast-tracking (or 'early settlement') encouraged companies to submit well-justified and good quality Business plans. In RIIO-ED1, fast-tracked companies received additional baseline allowance as well as higher totex incentive rates, compared to slow-tracked companies.

4.33 We have made significant changes to these tools and have replaced them with new mechanisms such as the BPI and the Confidence Dependent Incentive Rate (CDIR). The rationale for our decisions in this area is described in our SSMC[35] and confirmed in our SSMD. Firstly, we considered the assumptions that underpinned the IQI, and were therefore essential to making it effective, and were not satisfied as our totex forecast was not wholly independent to the companies' view. Secondly, the IQI worked under the assumption that companies always seek to maximise their IQI reward and are risk or loss neutral. In practice, this was not an accurate assumption. Companies may prefer to submit a forecast, that will limit the possibility of losses or limit the range of possible outcomes. Finally, the IQI was complex and was not easy to communicate internally within companies and networks were not making consistent choices as presented by the menu of contracts[36] underlying in the IQI.

4.34 For RIIO-2, we designed the BPI to encourage network companies to submit ambitious plans that contain the information we require to undertake a robust assessment of the Business plans. The additional information asymmetries that we have identified are a further justification for the move towards the BPI. The BPI encourages network companies to submit good quality Business plans, and this information allows us to better use UMs to manage the path to net zero.

4.35 The most direct impact from the use of the BPI will arise from the rewards and penalties which companies face, which will lead to them receiving higher or lower revenues under the price control. The new tools will also have a direct impact on consumer bills which may increase, as a result of consumers having to meet the cost of rewards made to companies, or fall if companies are required to pay penalties.

[35] See paragraph 9.30 of our RIIO-2 Sector Specific Methodology Consultation.

[36] The efficiency incentive rate for a specific network company depended on Ofgem's view of how accurate were companies' expenditure forecasts. In other words: the rate was based on the ratio between its expenditure forecast and Ofgem's assessment of its expenditure requirements as well as the parameters used to calibrate the IQI which is referred to in the literature as Menu Regulation.

Table 8: Outcomes of BPI for all companies[37]

Licensee	Stage 1	Stage 2	Stage 3	Stage 4	Applicable cap/collar (+/- 2% Totex)	Total Reward / Penalty (£m)
ENWL	No penalty	0	0	0	£37m	0
NPg	No penalty	0	0	0	£60m	0
NGED	No penalty	£4.6m	0	0	£129m	£4.6m
UKPN	No penalty	0	0	£25.5m	£109m	£25.5m
SPEN	No penalty	0	0	0	£63m	0
SSEN	No penalty	£3.5m	0	0	£77m	£3.5m

4.36 The outcomes of the BPI for all companies are set out in Table 8. We are not quantifying how the impact on companies would translate to consumers (as this would require some additional assumptions). In the SSMC, we provided strong justification for the move from the IQI to the BPI. In addition, our rewards / penalties set out in Table 8 reflect our overall view that the quality of information provided in Business plans has broadly met expectations.

4.37 The BPI required network companies to submit well justified Business plans, supported by evidence and analysis. This, in turn, allowed us to carefully consider which proposals should be allowed in the interest of consumers. We consider that our Final Determinations allow companies to maintain high quality services for consumers and are flexible enough to adapt to the needs of the future energy system, while ensuring value for money for consumers.

4.38 However, a full assessment of how well the BPI has worked will only be possible when we have enough data on performance and delivery of outputs and objectives. We will only be able to undertake that analysis, therefore, towards the end of the price control.

[37] Table 8 rewards have not been accounted for in the summary impacts table because it is quite difficult to compare these outcomes against the IQI (the counterfactual).

Output Delivery Incentives

4.39 The targeted application of financial incentives encourages companies to deliver certain outputs within a price control period where there is evidence of consumer value.

4.40 As part of the next price control, companies will be encouraged to deliver outputs in three main ways:

- We will incentivise service level improvements through Output Delivery Incentives (ODIs)
- Price Control Deliverables (PCDs) will capture outputs that are directly funded through baseline revenues in the price control and protect customers from delay in delivery or failure to deliver
- We will continue to set minimum standards of performance through retaining the use of Licence Obligations (LOs). Failure to meet these minimum standards could lead to enforcement action and / or penalties.

4.41 We have set out our rationale for the individual PCDs and LOs we will apply in RIIO-ED2 in the Core Methodology Document and in our Statutory Licence Consultation for RIIO-ED2 which we will publish in December 2022. In arriving at those individual decisions we will have considered the impact of each PCD and LO, however we have not included within the scope of this IA an assessment of the impact of using those tools relative to a decision not to apply those tools as part of the next price control. That is because we consider that we would have used these tools under the counterfactual and accordingly that the net impact between our preferred option and the counterfactual is zero. In this IA, we review the impact to changes in ODI parameters from the position we assessed during our draft IA. The key changes with respect to the previous IA have been:

- The introduction of an asymmetric cap and collar for the IIS
- The introduction of the Major Connections incentive, DSO incentive and a package of vulnerability measures.

4.42 Where we have access to historical data, we have formed assumptions about levels of performance against the targets. For other ODIs, we describe the rationale for intervention and the expected outcome.

4.43 We have not attempted to quantify the impact of introducing bespoke outputs as these are new proposals and we do not have historical data. We received nearly

100 proposals for bespoke outputs, which covered a wide range of themes from across the network companies' Business plans. We have assessed all of these proposals against the Business Plan Guidance (BPG) and have provided detailed analysis in Chapter 2 of the Core Methodology Document and in the Company Annexes.

4.44 In the absence of historical performance data, we have not incorporated assumptions on performance under any new ODIs for RIIO-ED2. In combination, this may increase the scope for company rewards and penalties resulting from the ODIs to some extent.

Analysis of ODIs impact

4.45 In RIIO-ED1, we observed a general trend towards outperformance in ODIs. In RIIO-ED2, we would expect company performance against targets to be lower than in RIIO-ED1, reflecting the fact that targets for incentives where companies have delivered improvements in RIIO-ED1 should be more ambitious to continue to drive improved performance in RIIO-ED2. We would also take account of lessons learned from the application of the RIIO-ED1 price control in setting targets for RIIO-ED2 in, for example, delaying target setting to ensure that targets reflect the latest available performance levels. Thus, we assume that only a portion of the RIIO-ED1 performance can be replicated in RIIO-ED2 to derive a view of potential revenues earned by companies under the counterfactual.

4.46 We have quantified the likely impact of changes to financial incentives in the Time to Connect, Broad Measure of Customer Service (BMCS) and IIS ODIs.

4.47 Under the preferred option (option 2), the impact relative to the counterfactual arises due to: a) different caps and collars for the IIS; b) different scenarios about target strength; and c) updates to RoRE estimates. Overall, option 2 represents a reduction in the level of risk associated with the ODIs, where incentive rates may be reduced or caps and floors narrowed.

4.48 We expect that re-calibration of incentive targets under option 2 would lead to a reduction in the extent of outperformance and therefore a reduction in expected revenues for companies. Given the outperformance observed in RIIO-ED1, we have decided to introduce an asymmetric cap for RIIO-ED2 for the IIS, which is the most significant incentive, with an upside cap of 1.5% and downside collar of 2.5% of RoRE.

4.49 We think that reducing the revenue cap will help to mitigate the risk of DNOs being able to earn rewards for improvements they have already made, due to the timing of when targets are set. We also note that, over RIIO-ED1, DNOs have earned significantly greater rewards than the cost of improvements, and that we have not seen evidence of the extent that this could change over RIIO-ED2. We recognise that reducing the cap will also limit the number of improvements the DNOs are incentivised to make, but we think it is likely that the significant improvements since the IIS was introduced in 2001/02 mean that the marginal benefit of further improvements has reduced as well.

4.50 We also considered reducing the downside collar, but have decided not to do so because we want to maintain a strong incentive for DNOs to avoid their performance deteriorating. We think that, by maintaining the relative strength between cost (totex) and quality of service (IIS) incentives, the risk of them underperforming to the extent they would be at risk of reaching the collar is very low, and other changes we are introducing to the target setting methodologies will address concerns some DNOs had with targets being unachievable.

4.51 For option 2, we have estimated the revenues that we would expect to see companies achieve under three scenarios, reflecting different levels of performance against the recalibration of incentives. Assumptions about company performance used in the quantification are meant to illustrate a range of potential impacts and reflect the potential for companies to outperform targets rather than set the levels at which we would expect companies to perform.

4.52 The scenarios range between a 'high impact' case, where companies overall fail to outperform targets, and a 'low impact' case where companies perform well against targets. This is similar to option 1. The three scenarios used in this case are meant to cover the broadest range of performance that we consider to be plausible.

4.53 We present in the table below a summary of the assumptions that we have used in each case. We note that some of the assumptions on company performance should not be taken to represent a final view of expected revenues earned by companies.

Table 9: Definition and assumptions under each scenario of revenue impacts

Feature	High impact case	Central case	Low impact case
Assumed performance levels	No overall outperformance	Companies only slightly outperform on incentives	Similar to counterfactual. Some significant outperformance[38]

4.54 The quantified impacts estimated in terms of the level of revenues earned by companies represent a direct transfer of these revenues from companies to consumers, ie where revenues from the incentives are lower, this will be passed through to consumers through a reduction in bills. Accordingly, the quantified impacts on consumers are equal to the reduction in company revenues.

Results

4.55 Under the preferred option, we would expect consumer benefits to increase (and company revenues to reduce). This would amount to approximately £123m (2023/24 CPIH) under the central case over the five-year price control, as shown below. These impacts result from a reduction in incentive rewards earned by the companies and a reduction in bills faced by consumers. We expect that the biggest reductions in rewards would occur under the IIS and BMCS incentives, reflecting the fact that these are the areas where DNOs have earned the largest rewards in RIIO-ED1.

Table 10: Impacts of ODIs under option 2 relative to the counterfactual over a five-year price control (£m 2023/24 (CPIH)) - discounted

	Impact on companies	Impact on consumers
Option 2 estimated revenues (high impact case)	-188	188
Option 2 estimated revenues (central case)	-140	140
Option 2 estimated revenues (low impact case)	-125	125

4.56 Given the outperformance observed in RIIO-ED1, we expect that re-calibration of incentive targets under option 2 would lead to a reduction in the extent of

[38] Performance levels for ODIs are defined based on RIIO-ED1 observed outperformance relative to the maximum reward / penalty available to DNOs in RIIO-ED1. Significant outperformance in this case refers to a scenario where DNOs continue to capture a relatively high share of rewards available under each incentive mechanism, although this performance is lower than under RIIO-ED1.

outperformance and therefore a reduction in expected revenues for companies. Such recalibration could take the form of setting more stretching targets (for example, by changing the methodology used to calculate targets) and tightening caps and floors.

Qualitative Assessment of changes in ODIs

4.57 In our Final Determinations, we have decided to introduce new financial incentives for Major Connections, Vulnerable consumers and DSO.

Major Connections

4.58 In our SSMD, we outlined principles and baseline expectations for how DNOs should deliver services to major connections customers and improve service standards. As a minimum requirement of Stage 1 of the BPI, DNOs had to produce a major connections strategy that aligned with these expectations.[39] We also set out that we would hold DNOs to account for the delivery of their major connection strategies through a financial ODI. The ODI-F would have a maximum penalty exposure of 0.35% RoRE and be applied to performance in the Major Connections Customer Satisfaction Survey. This would be calculated by applying approximately a 0.039% RoRE penalty rate per Relevant Market Segment (RMS). The penalty would be calculated based on the number of RMS where effective competition has not been demonstrated and aligned to DNO performance against the Major Connections Customer Survey.

4.59 Our decisions and rationale for introducing the major connections incentive are set out in Chapter 5 of our Core Methodology Document. These are to:

- Introduce the Major Connections Customer Satisfaction Survey (MCCSS): an independent survey provider will survey major connections customers against the key service areas identified in our baseline expectations. Performance against this is to be subject to a financial penalty
- Introduce the Major Connections Annual Report (MCAR): the report will detail the progress made against the delivery of milestones set out in the DNO's major connections strategy, including any improvements made to the

[39] SSMD Annex 1 - Delivering value for money services for consumer, Appendix 2, pg. 158 https://www.ofgem.gov.uk/sites/default/files/docs/2020/12/riio_ed2_ssmd_annex_1_delivering_value_for_money_services_for_customers.pdf

connections process over the RIIO-ED2 period. Additionally, annual MCCSS performance would be included in the MCAR

- Introduce reputational reporting against a series of timeliness metrics, which would be published in the MCAR.

4.60 The key change from Draft Determinations is that we have decided, where effective competition has been demonstrated, we will limit the application of direct regulation in the form of price control incentives on service provision. This is because we consider that competition can be a more effective way of delivering improvements in customer service and efficiency than direct regulation. Furthermore, we are mindful of introducing price control arrangements that only apply to DNOs for the provision of contestable connections, and not their competitors, as this could distort competition in the market. Therefore, only services in RMS where DNOs have not demonstrated evidence of effective competition will be within the scope of the ODI-F. We will assess performance in those RMS where competition is effective on a reputational basis only.

Vulnerability

4.61 Ensuring energy companies support and protect consumers in vulnerable situations is a priority for Ofgem. We recognise that the consumer landscape has changed since the publication of our Draft Determinations and how the impact of the cost-of-living is being felt most by those in vulnerable situations, particularly those who are fuel poor. In response, we have reviewed the vulnerability proposals set out at Draft Determinations to ensure they go far enough to enable valuable support to be delivered and have flexibility for DNOs to target their support to those who need it most.

4.62 The RIIO-ED2 package of vulnerability measures ensures that DNOs provide appropriate support and services to consumers in vulnerable situations and address the key vulnerability priorities for those whose wellbeing is most at risk during a loss of supply and to help those in, or at risk of, fuel poverty. As the energy system becomes smarter, cleaner and more flexible, DNOs will also need

to consider how their role in protecting the interests of vulnerable consumers may change.[40]

4.63 In practice the package of measures includes a combination of enforceable licence obligations to hold DNOs accountable for delivering minimum standards of service as well as financial and reputational incentives which will drive the behavioural changes, with tough targets for any reward and the opportunity to apply penalties for poor performance.

4.64 The key changes since our Draft Determinations are:

- updating the weighting given to individual metrics with in the ODI-F to place more emphasis on the value of services delivered to customers
- updating ODI-F target scores to reflect the most up to date information available to us
- reassessing our position on some bespoke proposals aimed at supporting vulnerable customers (our assessment of bespoke proposals is set out in more detail in the Company Annexes).

4.65 We summarise our decisions and the impact of our changes from our Draft Determinations proposal below. However, further detail on the RIIO-ED2 package of support for customers in vulnerable situations is set out in Chapter 5 of our Core Methodology Document.

Treating Domestic Customers Fairly (LO)

4.66 The purpose of this LO is to place an obligation on licensees to treat all domestic customers fairly and have the measures in place that deliver positive outcomes for such customers. This will benefit all consumers however vulnerable consumers will benefit in particular from the requirement for DNOs to have measures in place to identify vulnerable consumers in an effective and appropriate manner and interact with these consumers in a way that takes into account their vulnerability.

Our assessment of the Vulnerability Strategies and baseline expectations

4.67 The purpose of the DNO Vulnerability Strategies and associated principles and baseline expectations are to ensure that DNOs provide the appropriate support

[40] We introduced these three primary areas of focus in our SSMD and set out that these should be addressed within the vulnerability strategies.

and services to customers in vulnerable situations in RIIO-ED2. The strategies are expected to facilitate the delivery of services by the companies, which build on the extent and quality of service delivered in RIIO-ED1 where the DNOs' competence and opportunity for customer interaction puts them in the best-placed position to deliver support.

4.68 We have decided to maintain our Draft Determinations position that activities relating to the repair and replacement of gas boilers, the installation of energy efficiency measures and the training of in-house employees in delivering advice through workshops is outwith the scope of what a DNO is best-placed to deliver.

4.69 However, we have decided to allow these costs (subject to our cost assessment) for one DNO, SSEN, who planned to undertake these activities, given the development of the cost-of-living crisis since Draft Determinations. The impact of our decision allows support for fuel poor customers to be enhanced further.

Consumer Vulnerability Incentive (ODI-F)

4.70 The purpose of this ODI, is to ensure DNOs are held accountable for delivering their vulnerability strategies and the baseline expectations. This will incentivise DNOs to develop ambitious and best practice initiatives.

4.71 We have decided a financial incentive of +/- 0.2% RoRE, applied through weighted metrics. This would follow an ex-post assessment of performance against targets set against five metrics, underpinned by an independent assurance check process. In response to stakeholder feedback, we have decided to implement the Priority Services Register (PSR Reach metric with some changes to the dead band and performance collar proposed at Draft Determinations. These are:

- the introduction of a performance deadband between 60% and 75% PSR Reach
- a collar on penalties for DNOs that achieve a PSR Reach of less than 45% in addition to the cap on rewards for DNOs that achieve a PSR Reach of 90% or more, as proposed in our Draft Determinations.

4.72 We consider that the impact of our decision to change the PSR Reach deadband and collar level will drive DNOs to improve their performance over RIIO-ED2, meaning that a higher volume of customers eligible for the PSR will be registered and able to receive wider support from DNOs.

4.73 Compared to Draft Determinations, we have recalibrated the vulnerability incentive to place more emphasis on the support provided to vulnerable customers. We consider that the impact of this change will be an increased incentive for the companies to deliver more value to vulnerable customers in return for greater potential rewards.

Consumer Vulnerability Incentive Annual Report (ODI-R)

4.74 The purpose of this ODI is to ensure companies are held accountable for delivering their strategies and the baseline expectations within-period through transparent means. We consider that our decision to implement our Draft Determinations proposal on the scope of the ODI-R will encourage greater ambition and drive DNOs to evolve their role in response to emerging vulnerability issues within period.

DSO incentive

4.75 We set out in our SSMD[41] and Draft Determinations[42] that we would introduce a new financial DSO incentive, through which we would undertake an ex-post review of DNO's delivery of their DSO activities.

4.76 We are introducing a new DSO incentive comprised of a stakeholder survey, a performance panel assessment and outturn performance metrics, each of which will be subject to an ex-ante reward / penalty methodology. We believe our decision strikes the right balance between mechanistic and evaluative assessments, while taking into account the relative novelty of DSO and the limited availability of historical performance data. It leverages the opportunities to embed robust performance measures, capture stakeholder views and incorporate a more holistic assessment from a performance panel of technical and industry experts.[43]

4.77 The DSO incentive framework is intended to evaluate performance against the DSO baseline expectations set out in our BPG, as well as the associated delivery of

[41] See RIIO-ED2 SSMD Overview – Table 6 and Paragraph 5.38, https://www.ofgem.gov.uk/sites/default/files/docs/2020/12/ed2_ssmd_overview.pdf
[42] See paragraphs 4.53 to 4.57 https://www.ofgem.gov.uk/sites/default/files/2022-06/RIIO-ED2 Draft Determinations Core Methodology.pdf

[43] A full discussion can be found in Chapter 4 of the Core Methodology Document.

DSO benefits that emanate from these activities. It is subject to the following principles:

- Companies are penalised for failing to meet the baseline expectations
- Companies are neither penalised nor rewarded for meeting the baseline expectations
- Companies are rewarded for exceeding the baseline expectations.

4.78 For the outturn performance metrics and the stakeholder survey, the reward or penalty will be determined mechanistically with reference to outturn performance against ex-ante targets. For the performance panel assessment, the reward or penalty will be determined by Ofgem following a recommendation from a DSO performance panel. The DSO Performance Panel's evaluation will be based on the DSO Performance Panel Submission, the responses to the call for evidence, the presentation provided by the DNO at the DSO Performance Panel session and the answers provided to the question-and-answer session at the DSO Performance Panel session.

4.79 The DSO incentive value of + 0.4 / - 0.2% of RoRE is an annual figure. The potential rewards have been increased (from + 0.2 at Draft Determinations). We believe this is aligned with the substantial consumer benefits that DSO can unlock, as well as the need to have a sufficient upside to motivate outperformance. We also consider that a relatively stronger upside will mitigate the risk that the DNOs do not stretch themselves in this more novel area due to loss aversion bias.

4.80 At this stage is not possible to monetise the impact of these three financial incentives[44]. We expect DNOs may perform well and avoid any penalties in DSO and Major Connections incentives because the performance matrix has been carefully assessed and consulted widely (see Chapter 5 of the Core Methodology Document). However, it is difficult to assess the impact of the vulnerability and DSO ODIs as we do not have any prior data. In the absence of that data, we do not consider that we are able to quantify, in a meaningful way, the impact of these ODIs.

[44] As well as the non-financial elements of the vulnerability strategy.

Other impacts

Impacts resulting from the introduction of RAMs

4.81 As discussed in Chapter 1 of this IA, and in the SSMD IA, network company returns in RIIO-ED1 have been higher than was expected when the price control was set. In some cases, the outperformance reflects genuine innovation and efficiency, which improves services and reduces costs for consumers. In others, it has been the result of factors not linked to the companies' own actions.

4.82 In this section, we update the analysis we did for our SSMD IA. To prevent the risk of companies earning excessively high or low returns in a changing system, we decided to introduce the RAMs in RIIO-ED2. Our decision is to implement symmetrical RAMs with threshold levels of:

- 300bps either side of the baseline allowed return on equity, with an adjustment rate of 50% of returns above or below the relevant threshold
- 400bps either side of the baseline allowed return on equity, with an adjustment rate of 90% of returns above or below the relevant threshold.

4.83 The RAMs would apply as an adjustment to an individual company's performance. If network companies exceed these thresholds, any returns above or below would be adjusted as per the adjustment rates above. This mechanism will therefore provide symmetrical protection to consumers and investors in the event that network company returns are significantly higher or lower than anticipated at the time of setting the price control. The RAMs would not apply to performance on debt and tax allowances. Any income earned from the BPI would also be excluded from the RAMs.

4.84 As shown in Table 11, we rely on RIIO-ED1 information on company underspend and performance on output incentives, and apply a tier 1 threshold of 300 basis points around the baseline allowed return on equity.

Table 11: Description of assumptions used in our RAM analysis

Assumption	**Description**
Company underspend levels	As in RIIO-ED1

Assumption	Description
Incentive rate and outperformance on outputs	Totex incentive rate levels: as set out in Chapter 9 of the SSMD Overview Document
Gearing	60%
RAM thresholds	Tier 1: Indicative level set based on +/- 300 bps from the baseline allowed return on equity Tier 2: +/- 400 bps
RAM adjustment rate	Tier 1: 50% Tier 2: 90%

4.85 Our decision implies that the primary RAMs threshold will be triggered at 8.23% RoRE (3% above the baseline RoRE of 5.23%) and 2.23% RoRE (3% below baseline RoRE). In extremis, the secondary threshold would come into effect at 9.23% (4% above baseline RoRE) and at 1.23% (4% below baseline RoRE).

4.86 Our Final Determinations position suggests that, to trigger the RAMs, a notional licensee would need to have a considerable underspend or overspend, either alone or in conjunction with a significant out or under performance against ODIs.

4.87 In order to assess RAMs against the counterfactual, we have compared against RIIO-ED1 performance. Our assumptions on underspend and performance are based on RIIO-ED1 performance levels, which could overestimate the likelihood of triggering RAMs. In RIIO-ED2, we have set more challenging output targets than in RIIO-ED1 and we would therefore expect it to be more difficult for companies to replicate the level of outperformance and returns seen in RIIO-ED1. Performance against ODIs is also assumed to be similar to RIIO-ED1, despite targets being reset and made more challenging, but it is still the best approximation to future performance

Results

4.88 Using the TIM sharing factors, the impact of introducing the RAM would reduce company revenues by approximately £50m over RIIO-ED2, and this would be a direct transfer to consumers. The application of the RAM acts as a pure transfer between companies and consumers. Returns clawed back from network companies are fully returned to consumers through lower bills. In our SSMD IA, we used three scenarios to cover a range of possible sharing factors. Since we are setting

sharing factors in our Final Determinations, RAMs would have the same impact under low, central and high scenarios.

Table 12: RAM impact on consumers and on company revenues (2023/24 £m, CPIH, discounted)

	March 2021 IA (SSMD)			**June/November 2022 IA**
Impact	**High impact case 35% TIM**	**Central impact case 40% TIM**	**Low impact case 45% TIM**	**Draft Determinations impact case ~50%**
Company revenues	-9	-28	-46	-49
Consumers	9	28	46	49

4.89 We note that our analysis does not incorporate potential impacts on company behaviour that may arise from additional UMs and the BPI. As explained above, the level of underspends observed in RIIO-ED1 may not occur when all the parameters of RIIO-ED2 are applied. These are all elements reducing the likelihood of the RAM being applied in practice.

4.90 The RAM is a failsafe mechanism and a form of implicit profit sharing that, combined with shorter price control periods, can in theory reduce the incentive for firms to seek efficiencies. Our results from this indicative analysis anticipate a small adjustment in companies' revenues. However, we would not anticipate a change in company behaviour given the high level of outperformance required for the RAM to be applied.

Additional impacts assessed in our SSMD IA

4.91 In the SSMD IA, we provided a number of non-quantified assessments. For simplicity we summarise these impacts and refer back to the original analysis for more detail.[45]

Funding of innovation

[45] See sections 4.102 to 4.129 of the RIIO-ED2 Network Price Control Draft Impact Assessment, https://www.ofgem.gov.uk/sites/default/files/docs/2020/08/riio-ed2_impact_assessment_0.pdf

4.92 Our Draft Determinations set out our proposed approach to innovation funding for the RIIO-ED2 price control period.

4.93 We have made an initial £450m available through the Strategic Innovation Fund (SIF) for RIIO-ET2, RIIO-GT2, RIIO-ESO2, RIIO-GD2, and RIIO-ED2. We are not increasing the size of the SIF at this time, but we will keep its size under review during the price control period. Hence, the overall scale of innovation funding available to the DNOs is expected to at least match that available on a comparable basis under the RIIO-ED1 price controls. For this reason, and in line with our SSMD IA, we conclude that there is no material difference against the counterfactual. Accordingly, the expected impact on network companies' revenues and consumers is zero.

4.94 Any consumer benefits are likely to be realised in the long-term and beyond the horizon of the next price control. As network companies implement proven innovation into business-as-usual activities, their costs should reduce and their quality of service improve.

Impacts arising from the introduction of late and early competition

4.95 The introduction of competition 'for the market', in the form of early and late models, might drive down allowed revenues and, in turn profits, that incumbent network companies derive from new projects. In our previous IAs, we considered that the introduction of these forms of competition 'for the market' might result in a reduction of revenues and profits for the incumbent network companies and lead to bill savings to consumers.

4.96 Increased competition should reduce economic rents, which accrue to the regulated monopoly due to informational asymmetry, as well as increasing efficiency. Consumers would benefit from a reduction in bills as competition should reveal information on costs that can be used when setting price controls and help reduce the cost of meeting system needs.

4.97 Under some of these competition models, the introduction of competition might also result in lower administration costs for the network companies, including where they are not the party responsible for running competitions.

4.98 Overall, our Draft Determinations do not suggest any material difference against the RIIO-ED1 counterfactual. Accordingly, and in line with our draft IA, we do not

attempt to estimate the potential loss of revenues / profits to network companies relative to the counterfactual.

Impacts arising from length of price control

4.99 In our SSMD IA, we identified several pros and cons for both shorter and longer price controls. We consider the benefits of a shorter price control period, in relation to reduced risk of forecast inaccuracies and incentive calibration errors in light of the uncertainty surrounding network activity in the future. On balance, the benefits from reducing risks outweigh the loss of longer-term thinking.

5. Bill, Distributional and other Impacts

This section presents our updated analysis of the bill impact of our Final Determinations. It also presents analysis of distributional impacts and other impacts, such as on the environment.

Indicative Bill Impacts

5.1 Based on our Final Determinations, we calculated that domestic consumers will see savings of £4.82 (2021/21 prices) a year / per household based on medium typical domestic consumption values when compared to the average bill in RIIO-ED1. Figure 2 shows the evolution of bills by network company from RIIO-ED1 to RIIO-ED2. In order to find the average savings from all networks, we have calculated the weighted average for each period using the number of Meter Point Administration Numbers (MPANs), controlling for the size of the network.

5.2 We have assessed the distributional impact of our preferred option on different groups of GB domestic energy consumers, particularly those who are in vulnerable circumstances (See Figures 3-5). We have focused our analysis on impacts under our central case scenario as this indicates the more likely outcomes.

5.3 Figure 2 shows the change in bills impact per customer moving from RIIO-ED1 to RIIO-ED2. It covers several changes such as depreciation, pass-through costs and tax allowance adjustments that would have taken place under the counterfactual. It is therefore not strictly comparable to the NPV in the summary pages of this IA. Nevertheless, we think this is a useful comparison as it offers a full assessment of bill impacts for Final Determinations.

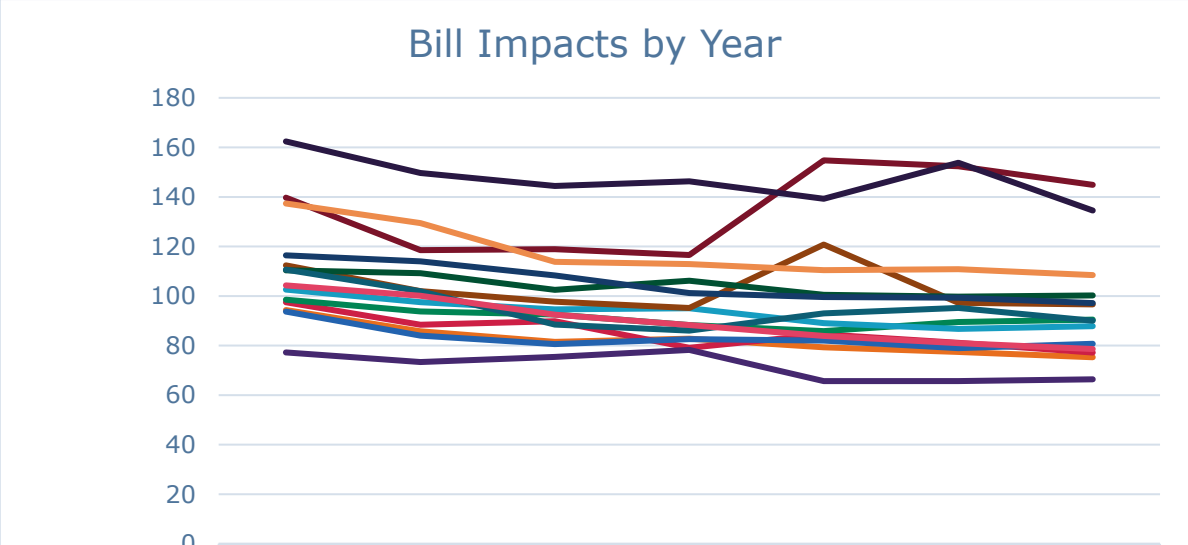
5.4 The average bill impact of £4.67 has allowed us to calculate bill impacts for:

- each of the statutory groups[46] of consumers that we must have regard to when making decisions
- some of those with vulnerable characteristics that we identified in our Consumer Vulnerability Strategy[47]

[46] These are: low income; disability / chronic illness; pensionable age; and rural areas.
[47] As listed in Appendix 1 of our Consumer Vulnerability Strategy. Data is not available for all characteristics of vulnerability listed. https://www.ofgem.gov.uk/publications/consumer-vulnerability-strategy-2025

- a wider set of consumers that we have categorised into distinct groups of GB households ("consumer archetypes").

Figure 1: Unweighted change in bill impacts for RIIO-ED2 Final Determinations (2020/21, £ real)



	2016	2018	2020	2022	2024	2026	2028
EMID	94	86	82	83	79	77	75
ENWL	97	88	90	79	85	81	77
EPN	99	94	93	88	86	90	90
LPN	77	73	75	78	66	66	66
NPgN	103	98	95	95	89	87	88
NPgY	94	84	81	83	82	79	81
SPD	112	102	98	95	121	97	97
SPMW	140	119	119	117	155	152	145
SPN	110	109	103	106	101	100	100
SSEH	162	150	144	146	139	154	135
SSES	111	102	88	86	93	95	90
SWALES	116	114	108	101	100	99	97
SWEST	137	129	114	113	110	111	108
WMID	104	100	92	88	84	81	79

5.5 The average bill impact of £4.67 has allowed us to calculate bill impacts for:

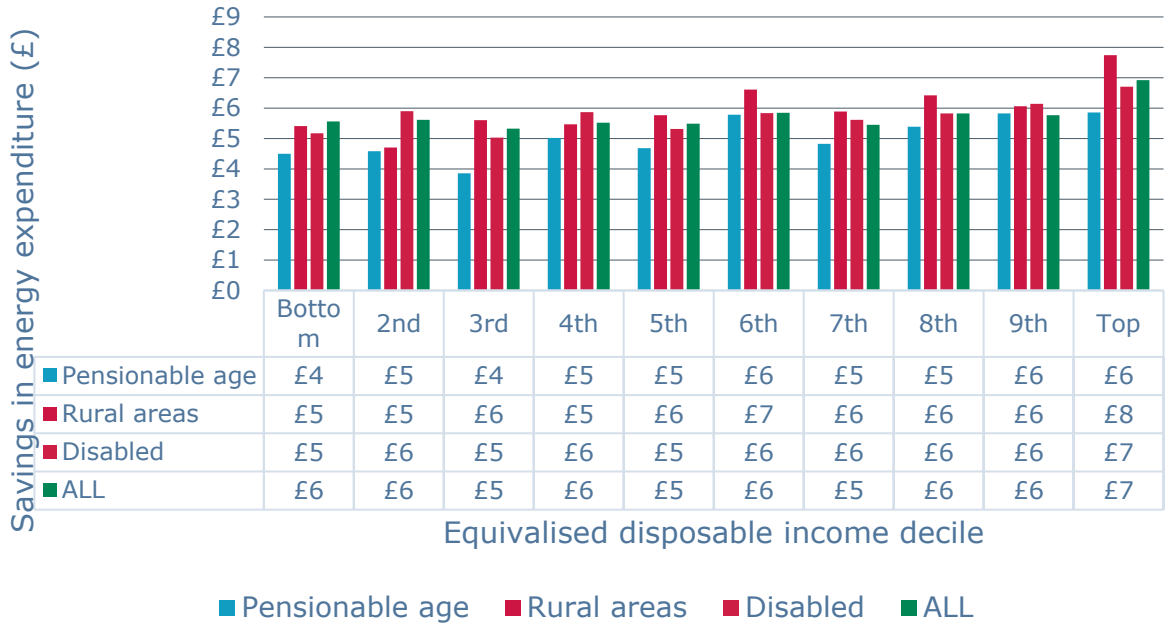
- each of the statutory groups of consumers that we must have regard to when making decisions
- some of those with vulnerable characteristics that we identified in our Consumer Vulnerability Strategy

5.6 We have used three metrics to calculate how the distributional impact of policies vary with income for different groups of consumers:

- absolute pound (£) savings or costs
- savings or costs as a percentage of disposable income
- equity-weighted pound (£) savings, capturing the fact that an additional unit of income improves the welfare of a low-income household more than that of a higher-income household. This is standard practice and recommended by HM Treasury Green Book when carrying out distributional analysis.[48]

5.7 We note that the total absolute level of savings would depend on the level of consumption. Figure 3 shows absolute annual bill savings can range from £4 to £8 per annum depending on customer category (pensionable age, rural areas, disabled) and income decile.

Figure 3: Distributional effects - annual impact energy bills, by categorical group and equivalised income decile



	Bottom	2nd	3rd	4th	5th	6th	7th	8th	9th	Top
Pensionable age	£4	£5	£4	£5	£5	£6	£5	£5	£6	£6
Rural areas	£5	£5	£6	£5	£6	£7	£6	£6	£6	£8
Disabled	£5	£6	£5	£6	£5	£6	£6	£6	£6	£7
ALL	£6	£6	£5	£6	£5	£6	£5	£6	£6	£7

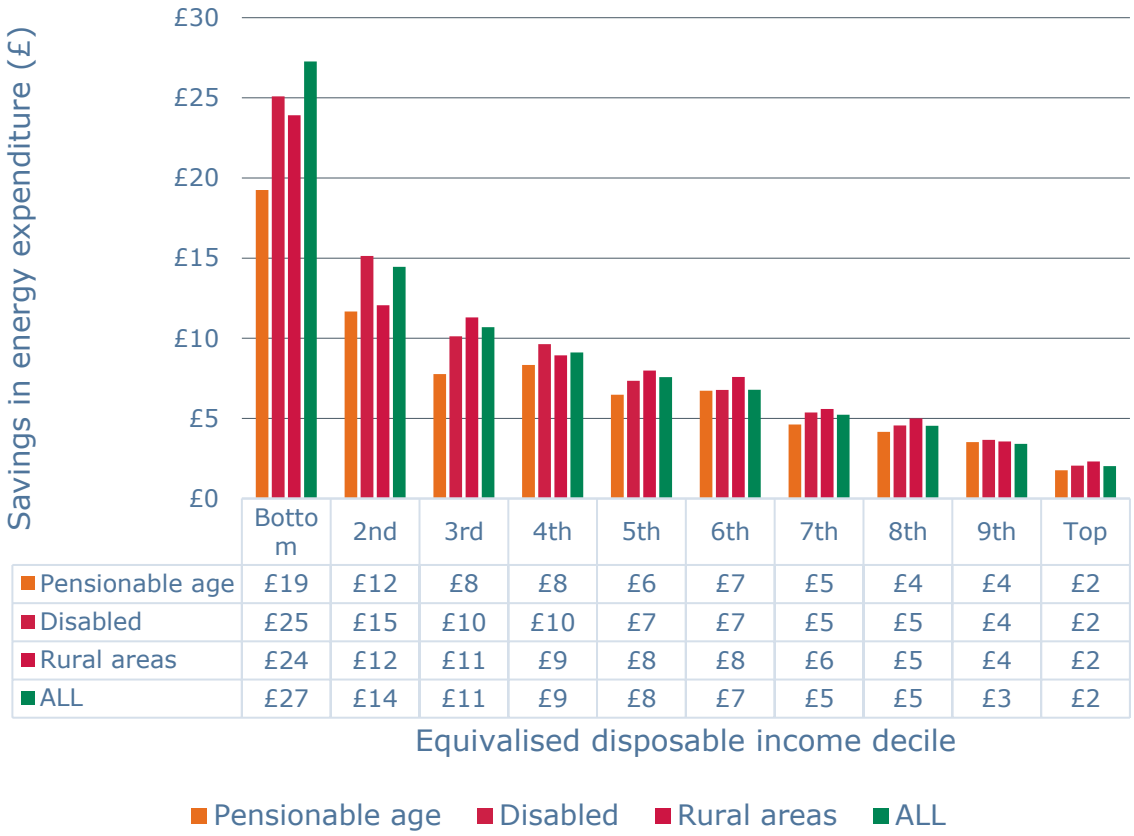
Source: Ofgem analysis

5.8 However, absolute annual savings do not fully capture the distributional effects of the impacts we envisage. Consumers with lower incomes place a higher value on a £1 saving in energy bills (ie they derive a higher marginal utility). To capture this, it is standard practice to apply "equity weights" to reflect that financial benefits for lower income households are given a higher social value than the equivalent

[48] This is based on the standard economic principle of diminishing marginal utility of income. In addition to providing absolute (£) savings, it is standard practice to apply equity/distributional weights, as set out in HM Treasury (2018, p.78) "The Green Book: Central government guidance on appraisal and evaluation".

benefits for higher income households. As shown in Figure 4, equity adjusted bill savings are much less uniform across income deciles - lower income customer can benefit the equivalent of as much as £27 per annum compared to a £2 equity adjusted average saving for top deciles customers.

Figure 4: Distributional effects - annual impact energy bills impact of the fixed reform on energy bills, by categorical group and equivalised income decile (equity adjusted)

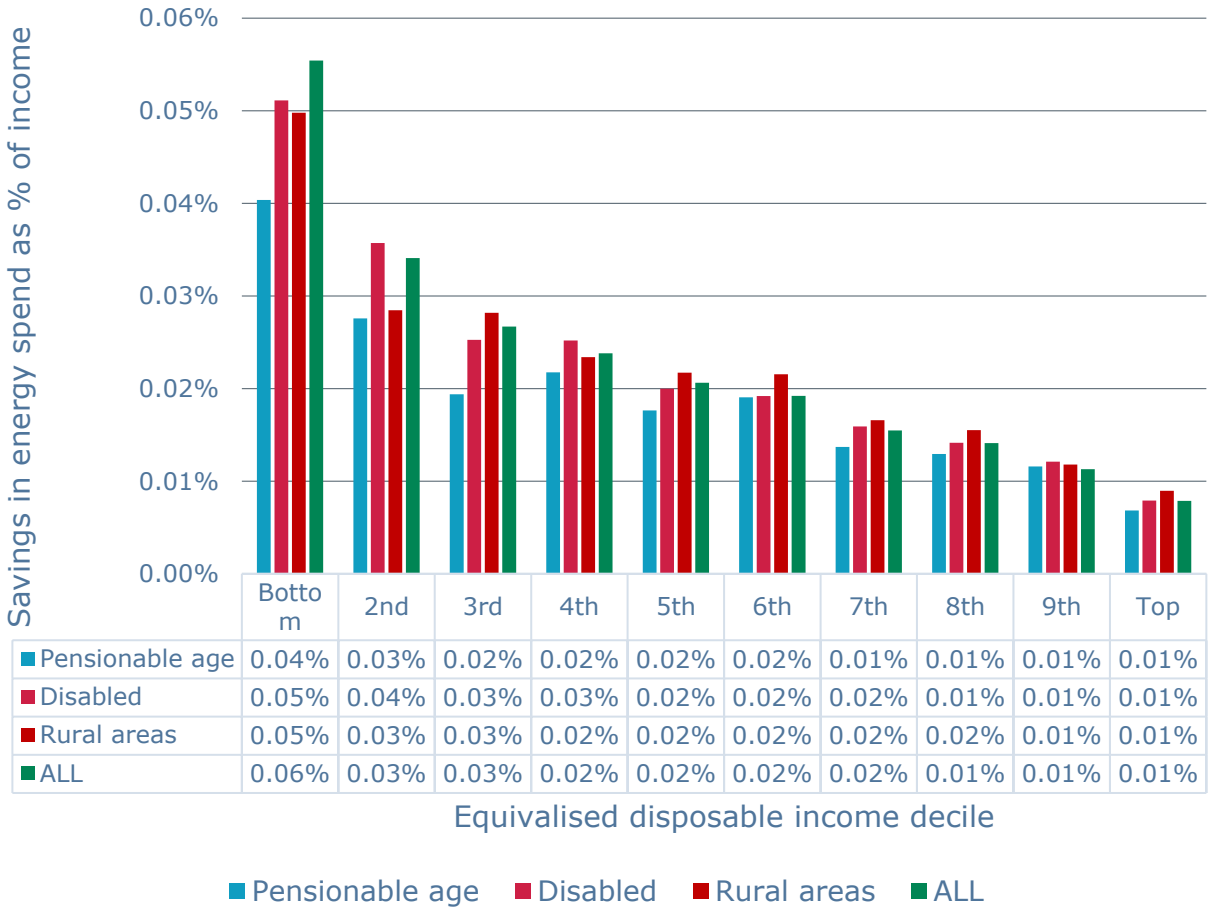


	Bottom	2nd	3rd	4th	5th	6th	7th	8th	9th	Top
Pensionable age	£19	£12	£8	£8	£6	£7	£5	£4	£4	£2
Disabled	£25	£15	£10	£10	£7	£7	£5	£5	£4	£2
Rural areas	£24	£12	£11	£9	£8	£8	£6	£5	£4	£2
ALL	£27	£14	£11	£9	£8	£7	£5	£5	£3	£2

Source: Ofgem analysis

5.9 An alternative way to capture the different relevance that monetary savings can have for different types of vulnerable customers with different income levels is to estimate the share of annual income that savings account for. As shown in Figure 5, savings range from 0.06% to 0.01% of equivalised disposable income.

Figure 5: Distributional effects - Impact on bills as a percentage of income



	Bottom	2nd	3rd	4th	5th	6th	7th	8th	9th	Top
Pensionable age	0.04%	0.03%	0.02%	0.02%	0.02%	0.02%	0.01%	0.01%	0.01%	0.01%
Disabled	0.05%	0.04%	0.03%	0.03%	0.02%	0.02%	0.02%	0.01%	0.01%	0.01%
Rural areas	0.05%	0.03%	0.03%	0.02%	0.02%	0.02%	0.02%	0.02%	0.01%	0.01%
ALL	0.06%	0.03%	0.03%	0.02%	0.02%	0.02%	0.02%	0.01%	0.01%	0.01%

Source: Ofgem analysis

Administration and resource costs

5.10 Our assessment of resource and administration costs is largely unchanged compared to the Draft Determinations IA.

5.11 We still consider that the introduction of new tools (such as the BPI, confidence dependant sharing factors, bespoke outputs, a wider use of in period UMs, and RAMs) when compared against the counterfactual could result in additional administration and resource costs for both Ofgem and network companies

5.12 Any additional administrative and resource costs on network companies could be passed on to consumers through higher network charges, reducing the consumer benefits from the introduction of the new mechanisms

5.13 We remain of the view set out in our SSMD IA, however, that any increase in administrative costs as a result of the introduction of the new tools listed above are offset by the range of benefits that they will bring to consumers. These benefits include more detailed plans for delivering net zero economically; higher degree of competition to promote efficient operation of networks; more transparency networks' activities and better engagement with consumers; and an increased focus on outcomes related the interests of individuals who are disabled or chronically sick, of pensionable age, with low incomes, or residing in rural areas.

Impact on the environment

5.14 As the transition to a low carbon energy system accelerates, we expect DNOs to both facilitate this transition as well as developing and operating their own networks in a smarter, more flexible and more sustainable way.

5.15 We therefore consider that, under the counterfactual and any other option, we would require each company to set out an Environmental Action Plan (EAP) in its Business Plan. Under any option, we would use the full range of tools including LOs, PCDs and ODIs to drive significant improvements. For example, PCDs for specific projects that DNOs proposed in their EAPs. Companies could propose bespoke incentives focused on the low carbon transition where they could demonstrate that these are in consumers' interests.

5.16 Overall, we consider that there is unlikely to be a significant variation between the impacts on the environment arising from our RIIO-ED2 decisions compared to the counterfactual. We note that the legislation for net zero would have occurred under any regulatory option Ofgem could have adopted for regulating DNOs, and Ofgem and the DNOs would have had to respond to that legislation.

6. Risks and uncertainties

6.1 Our consideration of the main risks and uncertainties associated with our Final Determinations is broadly unchanged compared to the analysis we presented in our SSMD IA and the Draft Determinations IA.

6.2 While a number of changes have been made in our Final Determinations relative to that set out in our SSMD (for example, around the calculation of the cost of equity and the calibration of some ODI parameters), these do not affect our conclusions on overall risk and uncertainty.

6.3 Overall, we consider our Final Determinations reduce the variability of revenues and the risks related to company performance. We consider that our decisions will introduce a more balanced risk / reward profile than has been observed in RIIO-ED1. In particular, the introduction of the RAM, setting incentive rates in line with our confidence in the submitted company costs, and greater use of indexation and in-period UMs should all mean that companies will face lower risks under the new price control relative to the counterfactual.

6.4 Furthermore, the scope for companies to earn rewards above the baseline allowed return on equity through factors outside of their control or due to information asymmetries is likely to be more limited because RIIO-ED2 UMs reduce the scope for ex-ante revenues.

Implementation risk

6.5 In any price control, the regulator faces several risks when it resets company cost allowances or resets targets, rewards and penalties for incentives. . For example, In RIIO-ED1, the parameters for the IIS turned out to provide high rewards for easy to meet targets and the allowance for the cost of equity did not reflect the risk profile companies faced. While Ofgem sets the price control using the best information available, there is a risk that key parameters, including allowances, could be set inaccurately.

6.6 Ofgem has introduced of a number of new tools, in particular the BPI, the confidence-dependent incentive rate approach for determining the incentive rate, and mechanisms to enable strategic investment in support of net zero targets.

6.7 The introduction of new tools in a price control, in the context of informational asymmetry, introduces implementation risk for the regulator. This risk could materialise from sub-optimal implementation of policy decisions, a legal challenge or material error that might affect the performance of network companies relative to ex-ante expectations. In turn, this could affect the delivery of benefits to consumers.

Uncertainties and potential for unintended consequences

6.8 Some of the consumer benefits that we have identified throughout this document are dependent on assumptions, many of which relate to how companies might respond to the tools and parameters set out within the options. Where these assumptions do not hold, some of these consumer benefits may not materialise or could be greater than we have anticipated.

6.9 To reflect the uncertainties relating to the network companies' responses to the new tools, we have undertaken scenario analysis. In Chapter 2 of the Core Methodology Document, we have presented our estimates of the monetised direct impacts under our preferred option as a range reflecting the limits generated by these scenarios.

6.10 In our SSMD IA, we identified some specific areas of uncertainty in our methodologies:

- How companies would respond to lower incentive rates
- The combination of the confidence dependent incentive rate and BPI would be applied for the first time in the electricity distribution sector. If these mechanisms do not work as effectively as we expect, the benefits relative to the counterfactual could be lower.

6.11 In practice, there could potentially also be some unintended consequences arising from the implementation of our methodologies. We identify those as being:

- **Changes to output incentives:** lower ODI rewards could reduce output levels in areas that consumers may value.
- **Bespoke incentives:** there is a risk that bespoke incentives might not be reflective of consumers' best interests because some of these incentives are untested and we don't have historical data to make a robust assessment.
- **Investing in the future:** some companies have argued that the combination of lower incentive rates, and a lower cost of capital, may lead to increased

'short- termism', with reduced investment in innovation and adoption of new technologies.

- **PCDs:** by tying totex allowances more closely to output delivery, we intend to minimise the extent to which consumers pay for outputs that companies simply defer or never deliver. However, PCDs could reduce the incentives for more efficient delivery of outputs by finding innovative solutions.
- **Finance parameters:** a low cost of capital could result in financeability challenges for companies. We have set the parameters after having considered carefully a number of financeability checks which give us confidence that they appropriate.
- **RAMs:** in the case that there is an actual (rather than stated) perception from companies that performance levels may lead to the RAM thresholds being reached, and there would be no incentive for them to continue to drive performance improvement once they reach the threshold.
- **Length of price control:** given the pace of change in the energy industry at the current time, we consider that the benefits of a five-year price control outweigh the potential downsides. However, an unintended consequence could be to drive 'short-termism' from companies such that long-term benefits (including for future consumers) reduce relative to the counterfactual.

Risk allocation

6.12 The design of RIIO-ED1 was intended to provide a relatively high risk and high reward regulatory framework that would incentivise network companies to deliver better outcomes for consumers and allow the best performing companies to earn high returns.

6.13 Observations of company performance within RIIO-ED1 suggest that the framework has provided network companies with more upside potential than downside risk and they have not delivered outputs for consumers as effectively as anticipated.

Risk and uncertainty tools

6.14 For RIIO-ED2, we are learning from the risk / reward allocation in RIIO-ED1 to rebalance what we consider to be a bias towards company reward.

6.15 A number of elements are likely to have an impact on the allocation of risk between network companies and consumers. The options that we have developed

are intended to recalibrate the risk / reward balance to ensure risk and return are better aligned.

6.16 Elements that help to recalibrate the risk / reward balance in the next regulatory period can be categorised as:

- Measures that reduce the network companies' exposure to risks that are outside their control. These include mechanisms such as the indexation of RPEs and the risk-free rate[49] (and to some extent shorter price controls which result in allowances being reset more frequently)
- Measures that reduce the network companies' exposure to risks related to their performance (eg totex incentive rates)
- Measures that reduce the overall variability of revenues (eg RAMs)
- Measures that allow Ofgem to claw back revenues where companies do not deliver the required outputs (eg PCDs and minimum standards of performance).

6.17 In addition to indexation of RPEs, recalibration of ODIs and the use of PCDs where appropriate, we have tools that reduce the overall variability of revenues and the risks related to company performance (eg lower totex incentive rates, RAMs). We therefore consider that we have introduced a more balanced risk / reward profile under our preferred option than has been observed in RIIO-ED1. Companies will face lower risks than under RIIO-ED1, but their scope to earn rewards above the baseline allowed return on equity through factors outside of a company's control or due to information asymmetries will also be more limited.

6.18 In our Final Determinations, we have confirmed a number of mechanisms which will facilitate the achievement of the government's net zero target by 2050. A key element of this is our approach to load related expenditure (LRE) network upgrades, which is intended to provide an agile and responsive approach to ensuring the networks can respond to changing sources of demand. This should also reduce barriers that impede the uptake of low carbon technologies needed to meet the net zero targets.

[49] The risk-free rate of return is the interest rate an investor can expect to earn on an investment that carries zero risk. In practice, the risk-free rate is commonly considered to equal to the interest paid on government's bonds. The risk-free rate is a theoretical number since technically all investments carry some form of risk. Nonetheless, it is common practice to refer to government's bond rate as the risk-free rate. While it is possible for the government to default on its securities, the probability of this happening is very low. Please Corporate Finance Institute for a more detailed explanation.

6.19 We note that this is a key area of change for RIIO-ED2, which could create risk. This includes: the risk of possible overinvestment at the expense of alternatives (eg flexibility resources); stranded or underutilised assets; windfall profits or losses, and an increased regulatory burden for companies and Ofgem. We have sought to ensure an appropriate balance across each of these factors, as reflected in our ex-ante allowances and a package of administrative and automatic UMs, with appropriate controls.

6.20 We recognise the introduction of automatic UMs for LRE could introduce new risks into the price control. Accordingly, we have sought to develop a set of controls that will be effective in managing these risks.[50]

6.21 For example, we have applied a number of controls for the secondary reinforcement volume driver which comprise the following:

- Monitoring framework and review process: we require reporting on common metrics on an annual basis which indicate the drivers of investment in that regulatory year
- Volume Driver Cap: a cap on the total expenditure that can be accessed in aggregate from the secondary reinforcement volume driver over the duration of the RIIO-ED2 control
- Mid-period parameters review: to review the mechanism's parameters mid-period.

6.22 These metrics focus on mitigating the risks of overinvestment or inefficient investment. We see this as a key facet for ensuring the mechanism does not distort incentives for using flexibility significantly. We will also use the broader price control package to drive the use of flexibility, including through the metrics and other evaluation criteria included within the DSO incentive. We will also reinforce the need to maximise the use of flexibility within the design of the LRE UMs, including the direct funding of flexibility services within the secondary network volume driver.

[50] Our uncertainty mechanism package and associated controls are set out in Chapter 3 of the Core Methodology Document.