Making a positive difference for energy consumers

RIIO-ED2 Network Price Control Draft Impact Assessment

Division:	Systems and Networks	**Type of measure:**	Price control
Team:	Network Price Controls	**Type of IA:**	Qualified under Section 5A UA 2000
Associated documents:	RIIO-ED2 Sector Specific Methodology Consultation	**Contact for enquiries:**	RIIO2@ofgem.gov.uk
Coverage:	Partial coverage		

This document sets out analysis of the benefits and costs to consumers and network companies of different options related to our proposals for regulating electricity distribution networks in the next regulatory period, from April 2023 until March 2028. The benefits and costs are compared to the counterfactual RIIO-ED1 regulatory framework. This is a draft impact assessment, which will be updated at Sector Specific Methodology Decision stage.

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Introduction

Purpose

In our RIIO-ED2 Framework Decision, we signalled our intention to publish a draft Impact Assessment alongside the RIIO-ED2 Sector Specific Methodology Consultation[1], and that this would consider the impact of the decisions we took in the RIIO-ED2 Framework Decision[2]. We published the RIIO-ED2 Sector Specific Methodology Consultation on 31 July 2020. This document provides our assessment of the impact of the Framework Decisions as well as proposals for specific outputs and incentives as set out in the RIIO-ED2 Sector Specific Methodology Consultation.

The key focus of the draft impact assessment is to answer the question of whether the changes in methodologies, tools and parameters under the options considered for the ED sector and for the next regulatory in period starting in 2023, provide good value for consumers.

The reasoning, evidence, assumptions and calculations we have used to inform our policy proposals for RIIO-ED2 are set out in the RIIO-ED2 Sector Specific Methodology Consultation itself and generally not repeated in this document. There are a number of areas where we are not yet making a decision or proposing a preferred approach, particularly strategic investment and some financial parameters. For strategic investment, we are consulting through our RIIO-ED2 Sector Specific Methodology Consultation, on four different regulatory models.[3] Regarding financial parameters[4], the values we use are working assumptions for the purpose of the draft IA and will be revised in future updates.

Most of the analysis supporting our regulatory options is set out and provided within this document and appendices. We have also relied, however, on evidence and analysis published by Ofgem in a number of other documents. In particular, this document should be read alongside the RIIO-ED2 Sector Specific Methodology Consultation and the RIIO-ED2 Framework Decision.

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[1] Please see RIIO-ED2 Sector Specific Methodology Consultation.
[2] Please see RIIO-ED2 Framework Decision, paragraph 5.4.
[3] Please see paragraphs 4.34-4.35, RIIO-ED2 Methodology Consultation: Overview, for a description of these models.
[4] We have not set out "working assumptions" on key financial parameters in the RIIO-ED2 Sector Specific Methodology Consultation. For the purposes of this IA, we are including "working assumptions" for indicative purposes only. This is not intended to prejudge the consultation process and the analysis will be updated as specific values and/or ranges are set out in future RIIO-ED2 publications.

The benefits and costs to consumers and companies identified in this draft impact assessment are relative to the RIIO-ED1 counterfactual (as defined through this document), and are based on a set of assumptions. We discuss assumptions used and results throughout this document. We will update this draft impact assessment at RIIO-ED2 Sector Specific Methodology Decision (SSMD) stage.

Structure and content

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

- Chapter 1 describes the context for the draft impact assessment, including background to the next price control, and the policy objectives Ofgem is seeking to achieve,
- Chapter 2 describes the options that Ofgem has explored for regulating network companies in the next regulatory period,
- Chapter 3 explains the purpose and scope of the draft impact assessment and our approach to the analysis,
- Chapter 4 presents our analysis of the impacts of our regulatory options on network companies and consumers in the next price control as well as considering wider impacts, including effects on the environment, and distributional impacts,
- Chapter 5 considers the impact of our regulatory options on companies and consumers beyond the next regulatory price control period,
- Chapter 6 presents an assessment of the main risks and uncertainties surrounding the options considered, and
- Chapter 7 presents a summary of our assessment of the options and the corresponding conclusions.

Summary: Interventions and Options

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

The current RIIO-ED1 price control for electricity distribution companies was set for an eight-year period, which will end in March 2023. A new price control will need to be in place for the start of the next price control period on 1 April 2023 and Ofgem is required to determine the methodology that it will apply in setting it.

RIIO-ED1, and more generally the RIIO regulatory framework, was intended to be a high-powered regime, allowing companies delivering high quality services at lower costs to earn attractive rates of return.

We reviewed evidence on the performance of network companies during RIIO-ED1 and, more broadly, the economic, technological and policy environment in which our next price control decision will apply. We identified a number of issues and changes that could be made to improve the RIIO framework for ED2 so that: (i) companies can earn returns that reflect their risk profile and performance improvements on their investment; (ii) customers can continue to benefit from high levels of service quality but at lower costs; and (iii) companies deliver the investment required to facilitate the uptake of Low Carbon Technologies (LCTs) needed to meet the net zero targets.

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

Ofgem's principal objective in carrying out its functions is to protect the interests of existing and future electricity and gas consumers.[5] 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;
- 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; and
- The interests of individuals who are disabled or chronically sick, of pensionable age, with low incomes, or residing in rural areas.

These duties are reflected in our objective for the next price control, which is to ensure that electricity distribution network companies deliver the value for money services that both existing and future consumers need. This involves the delivery by electricity distribution network companies of the following outcomes:

[5] s4AA Gas Act 1986 and s3A Electricity Act 1989.

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

In this draft impact assessment, we set out a number of options to achieve these outcomes.

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

In undertaking this draft impact assessment, we have considered four main options for the application of economic regulation over the next price control period:

- **Option 1 - Do nothing counterfactual ('RIIO-1'):** Under this option, we would continue to apply the same tools and calibration as applied in RIIO-ED1, with some allowances and outputs reset to reflect most recent data.
- **Option 2 - Recalibrated RIIO-1 approach:** Involves minimum changes to ED1 approach. We would retain similar mechanisms to RIIO-ED1 but revise certain areas of the regulatory package to reflect learning and evaluation.
- **Option 3 - Targeted changes**: Under this option, we would continue to use incentives to drive consumer benefits but would make more significant changes to certain areas, where we identify the potential for increased benefits.
- **Option 4 - Alternative regulatory framework:** Under this option we would move towards a regulatory framework which is closer to 'rate of return' regulation with limited upside incentive to match a low level of downside risk.

A number of factors have informed our choice of options. These include the evidence available to date on the effectiveness of the current RIIO-ED1 price control; the role of networks within the broader energy system transition, particularly the need to ensure that the distribution networks can facilitate the take-up of LCTs; the wider economic, policy and technological context; and theoretical and practical considerations.

We have not considered option 4 in detail, with most of our analysis focused on comparing options 2 and 3 against the RIIO-1 counterfactual (option 1).
On balance, based on our assessment of quantified and non-quantified impacts, we think

that the package of tools under option 3 is the most effective for the next regulatory period. Based on the measures we propose to introduce, we expect it to deliver greater net benefits to GB consumers, compared to the other options, of approximately £2 billion over the next price control.

We note that our preferred package of measures does not yet include a preferred option for regulating strategic investment in electricity distribution networks. We are consulting through our RIIO-ED2 Sector Specific Methodology Consultation[6] on four different models for strategic investment that will be considered alongside the other elements of our preferred regulatory framework.

[6] See RIIO-ED2 Sector Specific Methodology Consultation - Overview, Chapter 4.

Preferred option - Monetised Impacts (£m)

Business Impact Target Qualifying Provision	Non Qualifying
Business Impact Target (EANDCB)	Not Applicable
Net Benefit to GB Consumer Direct consumer Net Present Value (NPV) figures represent the direct impact on energy consumers compared to counterfactual (under option 3, central case) over the next price control period	Direct benefits excluding switch to CPIH: **£1,955million** Direct benefits including switch to CPIH: **£839 million**
Wider Benefits/Costs for Society Direct wider impacts include the direct revenue impact on network companies and administrative costs for companies compared to counterfactual (under option 3, central case) over the next price control period	Direct benefits excluding switch to CPIH: **- £140 million** Direct benefits including switch to CPIH: **- £140 million**
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 Price Inflation 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), meaning that it reduces consumer benefits within the next regulatory period. Our estimates of costs and benefits are indicative and subject to significant 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 draft IA impacts arising from changes to informational incentives, length of the price control, innovation, companies' responses to some of the tools introduced, administration costs and measures to introduce competition[7].

We consider that a large proportion of the monetised and non-monetised impacts we have identified would take place in the next regulatory period (RIIO-ED2, between 2023 and 2028).
However, there are also significant impacts that may go beyond the next regulatory period. These arise from decisions undertaken by companies that have long-term impacts. In particular:

- Medium-term strategic impacts: these relate to asset resilience, competition, changes to the inflation rate and incentive rate.
- Long-term sustainability impacts: these relate to strategic investment to facilitate Net Zero, innovation and impact on the environment.

We identify that in some areas existing consumers would fund companies to deliver benefits that would be realised beyond the next regulatory period (for example, investment in innovation and strategic investment for Net Zero). At the same time, future consumers will contribute to some of these costs as capitalised expenditure, which will increase future RAV levels. In other areas, consumers in the next regulatory period might benefit if companies reduce spending by deferring investment which will result in higher costs for future consumers. We have proposed measures to tie totex allowances more closely to specific outputs to mitigate the risk of future consumers paying for lower levels of delivery than expected over the RIIO-ED2 period.

[7] A separate draft IA considering the potential impact of late competition models in electricity distribution has been published alongside this document. The draft IA is an amended version of the late competition IA Ofgem published in May 2019 for the other RIIO sectors.

Key Assumptions/sensitivities/risks
Several impacts associated with the options we analyse are difficult to quantify given the stage of policy development and / or lack of appropriate data at this point. However, we have quantified the aspects that we think will have the largest impact on companies and consumers, to the best of our ability, using the information we have available to us at present. We have applied a number of "working assumptions" in order to assess impacts, which means some of the input values we use to calculate impacts may vary at draft and final determination. Accordingly, any quantitative estimates are indicative at this stage. Whilst some analysis can be completed using the information we currently have, there is uncertainty regarding how the network companies will respond in practice to the sector methodologies. Where appropriate, we have quantified a range of possible impacts and made use of sensitivity and 'breaking point' analysis. We also identify implementation risk in those areas of option 3 where we are proposing significant change or the introduction of new methodologies. Overall, we consider that the potential for significant consumer benefit resulting from our preferred option outweighs the risk associated with it.

Will the policy be reviewed? Yes	**If applicable, set review date:** Draft Determinations Stage

Is this proposal in scope of the Public Sector Equality Duty?	No

Summary table for all options

The table below provides a high-level summary of the expected impacts of our regulatory options. Further detail on the underlying analysis and evidence can be found in the relevant chapters throughout this document.

The monetised impacts presented below represent a partial quantification of some of the components of our options. The NPV presented for options 2 and 3 is an estimate of the impact on consumers over the next regulatory price control period (RIIO-ED2) compared against the RIIO-1 counterfactual. For option 3 (our preferred option) and for some of its components, we present estimates under a range of scenarios ('Low impact', High Impact', and 'Central case').

We note that most of the expected quantified impacts on consumers arise from assumed transfers[8] from companies to consumers, due to changes to the allowed return on capital, compared to the counterfactual.

Table 1: Impact on consumers of options 2 and 3 compared to counterfactual - quantified and non-quantified impacts, net present value over a five-year price control (£m 2023/24 (CPIH))[9]

Area of package	Mechanism	Option 2	Option 3	Option 3 Range	
				Low impact	High impact
Changes to financial parameters	Return on capital	**1,778**			
		Network companies will receive lower returns on invested capital.			
	Switch to CPIH	**-1,115**			
		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	**0**	**61**	21	64

[8] The transfer should be intended as a proposed reduction in the allowed return on capital compared to the RIIO-1 counterfactual, which in part reflects a fall in financing costs.
[9] Our estimates of impacts from the proposed change in the totex incentive rate, disregard the slow money component of totex, which is added to the Regulatory Asset Base of gas and electricity transmission, and gas distribution network companies, and as such they should be considered an overestimate of the impacts arising from changes to the methodologies for estimating these parameters.

Area of package	Mechanism	Option 2	Option 3	Option 3 Range	
				Low impact	High impact
	informational tools	No change from counterfactual	A combination of lower incentive rates and the introduction of our new information tools may increase the proportion of cost efficiencies relative to information rents, benefitting consumers further.		
	Output Delivery Incentives	**12**	**99**	19	154
		Consumer benefits may reduce where companies reduce delivery of outputs as a result of removal of incentives.	Consumer benefits may reduce where companies reduce delivery of outputs as a result of removal and re-calibration of incentives, but consumers will benefit from more ambitious targets and minimum standards of performance.		
	Price control deliverables	Consumers will benefit from tying network company expenditure (totex allowances) more closely to delivery. However, consumer benefits may reduce because network companies will have less flexibility to deliver cost efficiencies.			
Changes to other elements	Return adjustment mechanisms	**0**	**17**	63	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 greatly 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. We expect the extent of innovation funding to be broadly in line with that observed in RIIO-1.			
	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 3 given introduction of additional tools.			
Total quantified impacts		**674**	**839**	**765**	**880**
Total, not including switch to CPIH		**1,790**	**1,955**	**1,881**	**1,996**

1. Problem under consideration

This chapter assesses electricity distribution network companies' performance under RIIO-ED1 and identifies key issues related to the application of the regulatory framework that can be improved in RIIO-ED2. It also discusses the broad context in which the next regulatory price control will apply.

1.1 Since 2013, we have used the RIIO framework[10] to set price controls. Under the RIIO framework, company revenues are linked to their response to Incentives to deliver Innovation and Outputs. In electricity distribution, the RIIO framework has been applied starting with the RIIO-ED1 price control from April 2015.

1.2 The current RIIO-ED1 price control for electricity distribution companies (DNOs) was set for an eight-year period, which will end in March 2023. A new price control will need to be in place for the start of the next price control period on 1 April 2023 and Ofgem is required to determine the methodology that it will apply in setting it.

1.3 In December 2019, we made a decision to apply the existing RIIO framework11, with targeted changes, to the next price control. In making that decision, we considered a number of factors, including evidence of the performance of network companies during RIIO-ED1 and, more broadly, the economic, technological and policy environment.

Companies' performance under RIIO-ED1

1.4 Ofgem has assessed the overall financial performance of network companies during RIIO-ED1 using a measure called the Return on Regulatory Equity (RoRE). RoRE is an estimate of the financial return achieved by regulated companies' shareholders, based on notional gearing levels,[12] during a price control period. It is a useful way to gain an overall picture of how regulated companies have been performing under the price control.

[10] Please see Ofgem (2010). RIIO: A new way to regulate energy networks. Final Decision.
[11] Please see RIIO-ED2 Framework Decision.
[12] Notional gearing represents the assumed percentage of net debt to RAV for a notional company/licensee.

1.5 DNOs' RoRE has been consistently higher than Ofgem expected when RIIO-ED1 was set. As shown in Table 2, DNOs have been achieving close to double-digit returns in real terms during the first four years of RIIO-ED1 and they are forecast to maintain these levels of return over the entire RIIO-ED1 period.

Table 2: Operational RoRE[13] under RIIO-ED1

Company	Operational RoRE	
	Cumulative to 2019	RIIO-ED1 forecast
ENWL	9.5%	10.4%
SP	7.0%	6.9%
NPg	7.8%	8.3%
SSE	8.3%	8.3%
UKPN	11.4%	10.2%
WPD	9.4%	9.6%

Source: Regulatory Financial Performance annex to RIIO-1 Annual Reports 2018-19

1.6 Higher than expected returns could mean that companies are becoming cost efficient, are delivering well against their targets and are innovating. However, it may also happen due to factors that do not reflect improvements in companies' performance, such as cost allowances and delivery targets that are not challenging enough, and forecasting errors.

1.7 Additionally, information asymmetry[14] generates an informational disadvantage for Ofgem compared to companies, for example, when estimating the cost of implementing DNOs' Business Plans or the effort required to achieve delivery targets. This creates the risk of approving too generous cost allowances and allowing rewards in the absence of actual improvements in performances. If this is the case, regulation might not be challenging enough and regulated businesses may earn excessive returns.

1.8 RIIO-ED1 heavily relies on forecasts that are set several years in advance. If outturns differ considerably from forecasts, companies may also earn excessive returns. For example, market evidence shows that the cost of financing DNOs' operations has

[13] Operational RoRE excludes debt and tax performance.
[14] Information asymmetry refers to situations where one party to a transaction has more or better information than the other. For an overview of the presence of information asymmetry between regulators and regulated companies see e.g. C. Decker (2015), "Modern Economic Regulation, An introduction to theory and practice", page 86, section 4.4.

substantially decreased since we set the cost of capital for RIIO-ED1. As a result, companies have been earning returns that do not fully reflect their costs.

1.9 We identified a number of issues and changes that could be made to improve the RIIO framework for ED2 so that: (i) companies can earn returns that reflect their risk profile and performance improvements on their investment; and (ii) customers can continue to benefit from high levels of service quality but at lower costs.

1.10 These issues fall broadly within the following four areas:

- Application of the RIIO principles and objectives of the RIIO-framework
- Risk allocation
- Skew of expected return
- Information revealing devices.

In the next paragraphs, we describe the issues identified in each of the four areas mentioned above. The options we have considered to address issues in each of these areas are set out in Chapter 2. In Chapter 4, we discuss the impact of these different options.

Application of the RIIO principles and objectives of the RIIO-framework

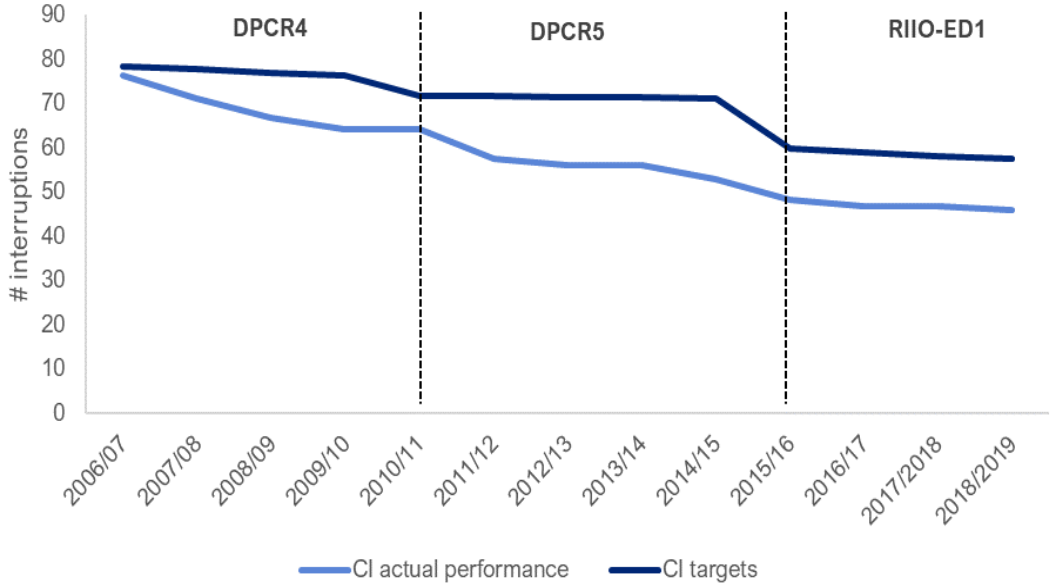
1.11 RIIO-ED1, and more generally RIIO, was intended to be a high-powered regime, allowing companies delivering high quality services at lower costs to earn attractive rates of return.

1.12 In this sense, it created execution risk for Ofgem. If not implemented correctly the RIIO regulatory framework would lead to consequences that are more significant for network companies and/or customers than under a lower-powered regime such as DPCR5[15]. As discussed above, this could mean that companies could benefit from returns, which do not reflect improvements in their performance if e.g. targets for specific incentives are not challenging enough.

[15] DPCR5 was the price control applicable to electricity Distribution Network Operators from 1 April 2010 until 31 March 2015. It preceded RIIO-ED1.

1.13 The interruptions incentive scheme (IIS)16 illustrates this problem well. IIS targets (both for customer interruptions (CI) and customer minutes lost (CML)) were set using data that were mostly out of date at the start of RIIO-ED1 and which did not capture the improvement in performance that DNOs had already achieved by the end of DPCR5.17 As shown in Figure 1, CI targets at the beginning of RIIO-ED1 are not in line with companies' performance at the end of DPCR5 but were set to levels that DNOs had already achieved in 2011/2012.

Figure 1: Customer interruptions targets and performance since DPCR4

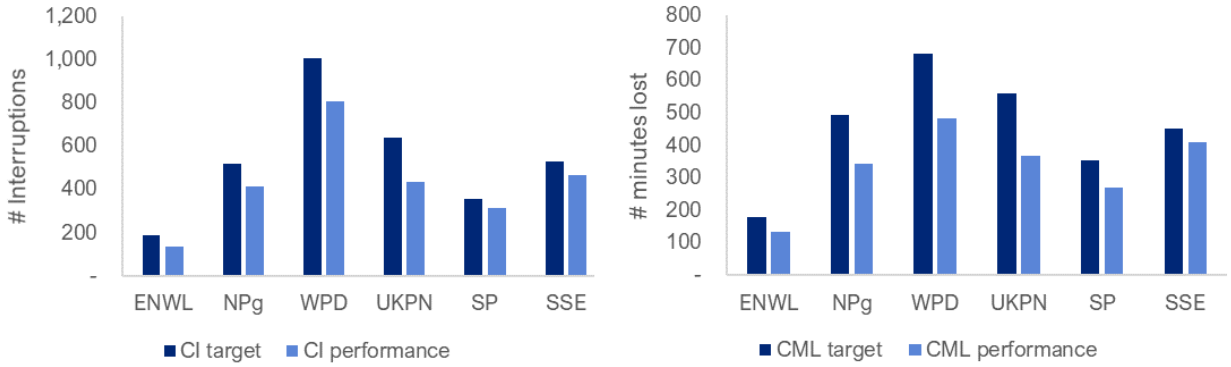


Source: Ofgem analysis

1.14 These targets turned out not to be challenging enough resulting in every DNO outperforming targets in every year since the start of RIIO-ED1. We report a comparison between IIS targets and performance of DNO groups up to 2018/2019 in Figure 2, both for CI and CML. In both cases, DNOs' performance is below the target (meaning fewer interruptions and minutes lost) which translates into rewards under the IIS.

[16] The interruption incentive scheme is one of the output delivery incentives DNO's are required to deliver in the RIIO-ED1 period. It has symmetric annual rewards and penalties depending on each DNO's performance against their targets for the number of customers interrupted per 100 customers (CI) and the number of customer minutes lost (CML).
[17] For a detailed review of IIS performance (for the first two years of RIIO-ED1) see CEPA (2018), "Review of the RIIO framework and RIIO-1".

Figure 2: CI and CML targets and performance during RIIO-ED1 (cumulative up to 2018/19)



Source: Ofgem analysis of RIIO-ED1 Annual Report Supplementary Data File 2018-19

1.15 From this data, it appears that DNOs might have been enjoying returns, which are not proportionate to the actual improvements in interruption performance achieved during RIIO-ED1.

Skew of expected returns

1.16 Information asymmetry in ex-ante incentive regulation poses the risk that the regulator sets incorrect allowances and targets. Due to the information advantage that companies have over the regulator, this risk may result in a higher upside potential for companies compared to the downside risk. In RIIO-ED1, there was no protection for consumers against the residual risk of network companies earning additional returns that are not due to performance improvements.

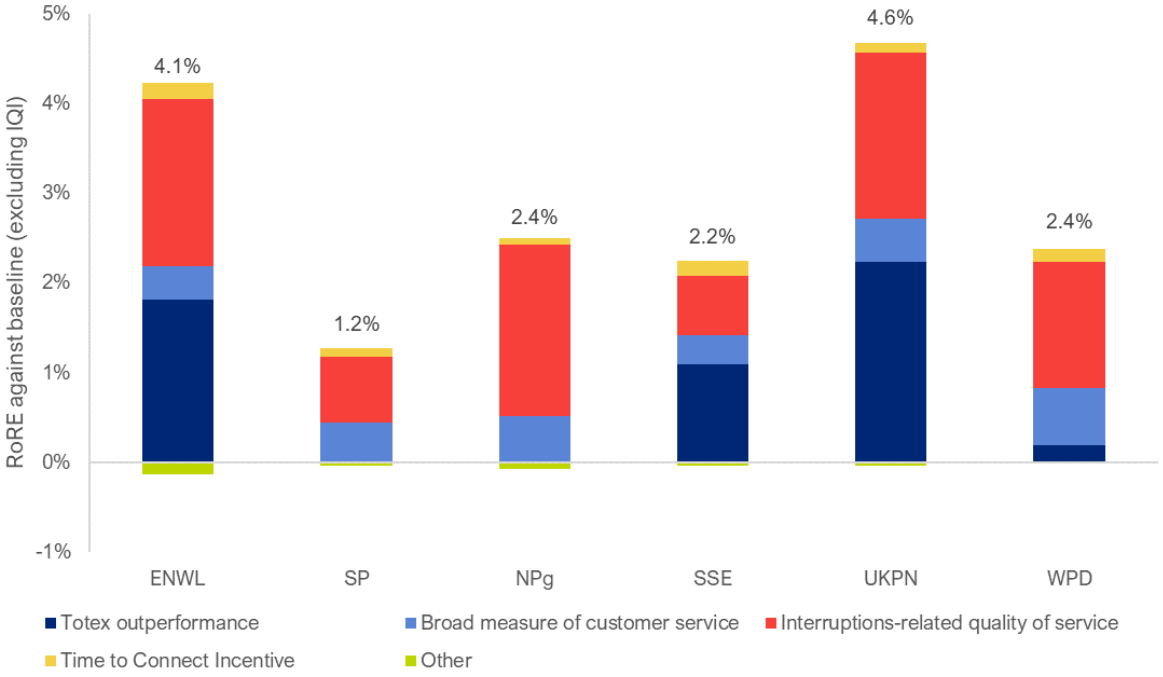
1.17 In RIIO-ED1, network companies earned additional returns from a number of sources. We show this in Figure 3, where we report outperformance in terms of RoRE (i.e. additional returns on top of the baseline allowed return on equity and the Information Quality Incentive[18]) for each DNO group.

1.18 IIS returns have been the main driver of DNO's outperformance in terms of RoRE, except for UKPN[19]. However, additional returns are not limited to IIS. Most electricity distribution companies have been earning additional returns also due to exceeding targets

[18] We discuss the Informational Quality Incentive later in this section.
[19] For UKPN, the main driver of performance has been the totex.

for other incentives like the customer service and time to connect, as well as underspending totex allowances.

Figure 3: DNO groups outperformance in terms of RoRE over RIIO-ED1 (actuals up to 2018/19 and forecasts up to 2023)



Source: Ofgem analysis of Regulatory Financial Performance annex to RIIO-1 Annual Reports 2018-19

1.19 Over the entire RIIO-ED1 period, DNOs are forecast to underspend their totex allowances by 4% across the sector. ENWL, UKPN, WPD and SSE have earned returns through totex outperformance, primarily due to underspending on network reinforcement (47% underspend up to 2018/19) and on asset replacement and refurbishment (18% underspend up to 2018/19). Companies have spent less than expected on network reinforcement because of lower demand for electricity; lower than expected uptake in low carbon technologies (such as heat pumps); and an increase in energy efficiency measures and innovative solutions used by DNOs. Lower expenditure on replacement and refurbishment can be explained by delay or deferral in projects as well as the introduction of innovating cost-minimising techniques.[20]

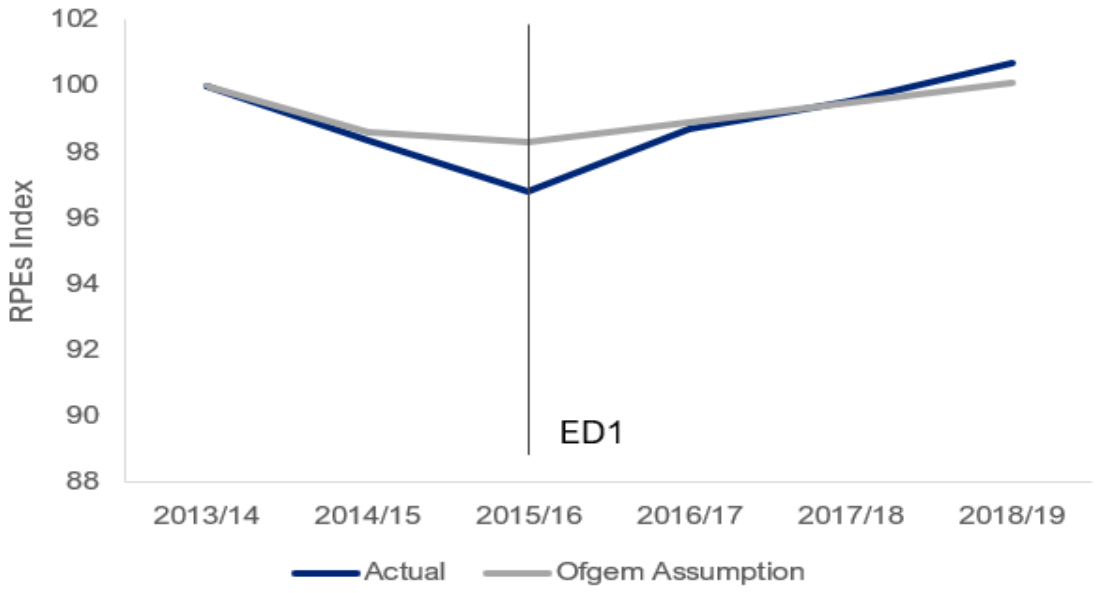
[20] For more detail please refer to Ofgem (February 2020), RIIO-ED1, Network Performance Summary 2018-19, p.7-9.

Risk allocation

1.20 RIIO-ED1, and RIIO more generally, has exposed network companies to some risks that are likely to be outside their control. For example, DNOs have been receiving ex-ante allowances for real price effects (RPEs) i.e. increase in price for inputs DNOs use that are different from the general price increases captured by RPI indexation. DNOs could benefit from added returns that are not due to their performance if actual RPEs are lower than what was forecasted to determine the RPE allowance or lose out if actual RPEs turn out to be higher than forecast.

1.21 Additional returns due to discrepancies between RPE allowances and outturns have been substantially lower in RIIO-ED1 compared to other sectors.[21] Nevertheless, our current analysis suggests that actual RPEs have been lower than what we assumed for the first two years of RIIO-ED1 and that DNOs have earned additional returns as a result. In the last two years, actual RPEs have been broadly in line with Ofgem's forecasts.

Figure 4: Comparison of RPEs during RIIO-ED1 – actuals versus Ofgem forecasts for RIIO-ED1



Source: Ofgem analysis.

[21] For a cross sector comparison of RPEs, see the analysis undertaken by CEPA in 2018. CEPA (March 2018), Review of the RIIO framework and RIIO-1 performance, Figure 2.4

Information revealing devices

1.22 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)22 and 'fast-tracking'[23].

1.23 The purpose, implementation and challenges relating to IQI and 'fast-tracking' in electricity distribution are not different from the other energy sectors. We have set out our concerns around the effectiveness of the IQI, for example, in the RIIO-ED2 Sector Specific Methodology Decision (May 2019),[24] where we decided to remove the IQI in the gas distribution and gas and electricity transmission sectors.

Information Quality Incentive

1.24 The IQI aimed to address information asymmetries between Ofgem and DNOs by making it theoretically optimal for companies to propose their true expected costs.

1.25 The IQI provided a financial incentive for companies not to inflate their cost forecasts. This worked by setting certain parameters within the price control on the ratio of the 'company view' of efficient costs (as presented in their Business Plan) to the 'Ofgem view' of efficient costs (as set out ultimately in our final determination of allowed costs). Companies that achieved low IQI ratios were rewarded (through additional income and higher totex incentive rates) and those with high IQI ratios were penalised (through penalties and lower incentive rates).

1.26 We believe that the conditions essential to make the IQI effective do not hold in practice[25]. For example, Ofgem's approach to cost assessment means that the baseline is

[22] The aim of the IQI is to encourage companies to submit more accurate expenditure forecasts to Ofgem. For a detailed description of the IQI, please see RIIO Handbook, paragraphs 8.45-8.46.
[23] Under RIIO-1, where a network company submitted a realistic and well-justified business plan that clearly provided value to consumers, we could apply lighter touch regulatory scrutiny to elements of the plan. If the plan was of sufficiently high-quality and provided good value overall, we considered it for fast-tracking. This meant we accepted the business plan as submitted and concluded the company's price control review early. Please see RIIO-2 Framework Decision, July 2018, Glossary.
[24] RIIO-2 Sector Specific Methodology Consultation, 18 December 2019: https://www.ofgem.gov.uk/system/files/docs/2019/05/riio2_sector_specific_methodology_decision_-_core_30.5.19.pdf
[25] Please see RIIO-2 Network Price Controls Draft Impact Assessment for a description of those conditions, p 17-18.

unlikely to be completely independent of companies' forecasts. Additionally, we observed that the IQI has been seen to be a complex and often misunderstood incentive mechanism.

1.27 Our analysis of the operation of the IQI mechanism during the RIIO-1 price controls suggests that the conditions required for the IQI to operate as intended are unlikely to hold. There is limited evidence that the IQI sufficiently influenced companies' behaviour to submit cost projections that reflect the best estimates of their likely efficient expenditure.

1.28 For RIIO-ED1, we did not publish the IQI matrix in advance of companies' submissions. This could have provided a stronger indication to companies of potential rewards and penalties and allowed them to optimise their totex submissions. As we discuss in Chapter 4, we consider this approach in the range of options available to us for RIIO-ED2.

Fast tracking

1.29 In addition to the IQI, 'fast-tracking' (or early settlement) encouraged companies to submit well-justified Business Plans. In RIIO-1, fast-tracked companies received additional upfront income as well as higher incentive rates, compared to slow-tracked companies.

1.30 Ofgem raised the following concerns with fast-tracking based on the evidence available from RIIO-1:[26]

- It may not be appropriate (and may be unduly costly for consumers) to use two separate mechanisms to provide incentives for the same outcome (a well-justified Business Plan).
- Fast-tracking has the potential to incentivise improved Business Plans, but only in sectors where there is adequate diversity of ownership and comparability between the companies. Early settlement also has other costs not previously appreciated, including the risk of making process errors and providing insufficient scrutiny of Business Plans.
- Fast-tracking may limit the extent to which improvements in the quality of business plans could be driven by the enhanced engagement programme, thereby limiting the extent to which local stakeholder needs are reflected in the final business plans.

[26] The following points are based on Ofgem, RIIO-2 Framework Consultation (March 2018), page 69-70.

1.31 In Chapter 4, we consider alternatives to the IQI and fast tracking.

Economic, technological and policy context

1.32 In addition to evidence from RIIO-ED1, we have also taken into account the broader economic, technological and policy context in considering how to regulate network companies in the future. Below we provide several examples.

Net Zero legislation

1.33 In 2019, the UK Government passed legislation enshrining in law the target of Net Zero greenhouse gas emissions by 2050. The Scottish Government also legislated to set a Net Zero target for 2045 and the Welsh Government intends to introduce legislation to its existing 2050 target for the achievement of Net Zero emissions. In February this year, we published our Decarbonisation Action Plan27. It sets out the actions we will take within 18 months, beginning our next steps on an urgent but decades-long journey, towards Net Zero.

1.34 In our Action Plan, we committed to take steps to make the network price control regulatory regime more adaptive in order to deliver the most effective transition to Net Zero at the lowest cost to consumers. These included a review of the design of the electricity distribution network price control to facilitate the transition to Net Zero.

1.35 As the growth in electric vehicles accelerates and more homes and businesses source their heat and power from cleaner energy sources, a core responsibility of the electricity distribution networks will be to facilitate these changes. This means responding to the demand for low carbon connections in a timely way, finding efficient ways to respond to new sources of demand and to create flexibility on the networks, and supporting innovation that could expand the range of possibilities for the decarbonisation of heat, power and transport.

A smart and flexible energy system

1.36 The use of flexibility as an alternative to network investment has the potential to deliver huge value to consumers, but it requires a change in how the distribution system is operated. We are proposing to introduce a suite of reforms to define and regulate

[27] https://www.ofgem.gov.uk/publications-and-updates/ofgem-s-decarbonisation-action-plan

distribution system operation. In the first instance, those reforms will apply to DNOs. We are considering if and how we can allocate distribution system operation functions to other parties in the future, including identifying arrangements that will unlock the benefits to the whole system of better coordination and planning, and proposing arrangements that enable a separation pathway should that be required.

Policy and engineering recommendations for system stability

1.37 In 2019, Government and Ofgem jointly commissioned an independent panel to undertake a review of electrical engineering standards.[28] This panel will make recommendations to government on next steps to ensure that:

- electrical engineering standards are not creating undue costs on the electricity system and consumers, and
- the standards are ready for a smart and flexible electricity system.

1.38 This work is due to conclude in the coming months and we will need to consider the impact on RIIO-ED2 associated with the implementation of any recommendations. This includes the potential impacts of any new requirements for the quality, security and resilience of electricity supplied by these networks, for connecting to and using these networks, for enhancing the interoperability of these networks with smart appliances and low carbon technologies, and how distributed energy resources and smart technology could supplement the need for traditional network reinforcement. The implementation of recommendations will involve further consultation with stakeholders.

Access and Forward-looking charges Significant Code Review (SCR)

1.39 RIIO-ED2 is part of a wider programme of work that will enable the energy system to become increasingly decentralised, decarbonised and digitalised, while ensuring that the interests of consumers continue to be protected.

1.40 This work includes our Access and Forward-looking charges Significant Code Review ('Access SCR'), where we are reviewing the arrangements for access to and charging for use of the electricity networks. The objective of the review is to ensure electricity networks are used efficiently and flexibly, reflecting users' needs and allowing consumers to benefit

[28] https://www.gov.uk/government/publications/electrical-engineering-standards-independent-review

from new technologies and services while avoiding unnecessary costs on energy bills in general.

1.41 This could impact on RIIO-ED2 in a number of different ways. We are coordinating our work across these projects so that decisions and recommendations are made to a timescale that aligns with the development of the RIIO-ED2 sector methodology and the preparation of DNO business plans. For instance, we plan to consult on our minded-to decision on access and forward- looking charges later this year with a final decision in spring 2021.[29] We provide more detail on this in our RIIO-ED2 Sector Specific Methodology Consultation.[30]

1.42 Further, we consider that the use of data lies at the heart of the energy system transition. A shared understanding of what is happening to energy flows and the status of network infrastructure allows the exciting prospect of innovators spotting creative opportunities to address energy issues, as well as potentially to use energy data to benefit consumers in the economy more widely. Building on the recommendations of the Energy Data Task Force, electricity networks need to be digitalised and their data has to be modernised and made available in a transparent and open manner.

[29] The implementation of our Access SCR is likely to result in subsequent code modifications and there may be licence modifications (depending on our decision). These will come into effect from 1 April 2023.
[30] https://www.ofgem.gov.uk/system/files/docs/2020/07/ed2_ssmc_overview.pdf, Chapter 8.

2. Options considered

This chapter describes the options that Ofgem has explored for regulating electricity distribution network companies in the next price control starting in April 2023.

Regulatory tools

2.1 Ofgem has several 'tools' available to help it to achieve its price control objectives. At a high level, these tools can help to deliver better outcomes for consumers, by helping to mitigate information asymmetries and helping to reduce the risk and impact of benchmarking 31and forecasting errors.

2.2 We can group these tools into four main categories of the regulatory framework:

- financial parameters,
- Incentives,
- other tools, for example, including price control length, extent of stakeholder engagement, and use of competition and innovation, and
- tools to manage risk and uncertainty.

2.3 In the table below, we provide some examples of the main tools available to Ofgem in each of these four categories. Some of these tools have been used by Ofgem in previous price controls and might contribute to the achievement of more than one policy objective.

Table 3: Types of tools available to Ofgem as part of the regulatory framework

Category	Purpose	Examples
Incentives - Informational	• To incentivise companies to reveal information on cost, risk and uncertainty and to mitigate information asymmetries • To limit opportunities for companies to act strategically by overstating their cost estimates	• Menu of contracts/IQI • Business Plan Incentive (BPI)

[31] Benchmarking could be defined as the process used to compare a company's performance (eg its costs) to that of best practice or to average levels within the sector. Please see RIIO-2 Draft Determinations, Glossary.

Category	Purpose	Examples
Incentives – Operational	• To create incentives and arrangements so that network services are delivered at the most efficient cost • To limit benchmarking errors	• Benchmarking or bottom-up approaches to set totex allowances • Totex – assigning equal weight to capital and operational expenditure • Incentive rate
Incentives - Outputs	• To maintain a safe and resilient network • To meet the needs of consumers and network users • To deliver an environmentally sustainable network	• Customer Interruption • Shrinkage • Customer satisfaction • New connections
Other – Competition and innovation	• To encourage greater efficiency over time	• Competition (late/early models) • Funding for Innovation
Other - length of price control	• To strengthen incentives available in the regulatory period • Reduce forecasting and benchmarking errors	• 5 or 8 years
Other – external engagement	• To identify 'outputs' valued by consumers • To help Ofgem scrutinise companies' Business Plan submissions	• RIIO-ED2 Challenge Group • Companies' Customer Engagement Groups • Open Hearings • Net Zero Advisory Group

Description of options considered

2.4 We have considered potential changes to the RIIO-ED1 framework to address the problems that we discussed in Chapter 1. The issues identified are relatively similar to those affecting the other energy sectors. Consistently, most of the changes we identified broadly align with those we have introduced for other price controls.

2.5 In addition, key strategic issues that could impact upon the RIIO-ED2 price control and require specific changes include:

- Supporting Net Zero targets and innovation
- Creating a smart and flexible energy system
- Delivering value for money services for consumers
- Keeping consumer bills a slow as possible

2.6 To identify these changes, 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:
  - 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.

2.7 Our assessment led to the development of four alternative "regulatory options" for RIIO-ED2, spanning from no change to major overhaul and from ex ante regulation to ex post rate of return regulation. We describe these in Table 4 below.

Table 4: Long list of options considered

Category	Purpose
1. Do nothing: "counterfactual"	This option would involve Ofgem using the same mechanisms used in RIIO-ED1. We would re-apply the RIIO-ED1 framework and sector methodologies and reset allowances and output targets based on updated data from setting and running the RIIO-ED1 price control.

Category	Purpose
2. Recalibrated RIIO-ED1: "Do minimum"	This option is a revised version of the RIIO-ED1 framework with minimum changes. As part of this option Ofgem would make better use of existing mechanisms (for example IQI), introduce new mechanisms to address risk allocation (e.g. indexation of RPEs) and remove other elements (for example early settlement).
3. Targeted changes	Under this option, Ofgem would still use incentives to drive consumer benefit, but we would make more significant changes. We would reduce the power of the incentives available (for example reduction in the incentive rate), reduce the benefits gained by companies through the business plan process (confidence-dependent incentive rate, Business Plan Incentive) and share the cost of outperformance currently borne by consumers (relative incentives, return adjustment mechanisms). We would also introduce new incentives and mechanisms to foster investments in low carbon technologies to reflect Net Zero targets.
4. Alternative regulatory framework	This option would involve Ofgem moving towards an alternative regulatory framework, which is closer to rate of return regulation. As part of this option, there would be less emphasis on 'upside' incentives. Efficiencies would be driven mainly through an ex post assessment of expenditure and licence conditions (but not the quality of service), and greater use of competition in all sectors.

2.8 When we considered the regulatory framework for the other energy sectors, we said that Option 4 would represent a fundamental change that is not currently in the best interests of existing and future consumers, particularly given the scale and pace of the energy system transition. We believe this applies to the electricity distribution sector as well.

2.9 Accordingly, most of the analysis has focused on comparing options 2 and 3 against the counterfactual. Both options retain an ex ante, incentive-led framework that can stimulate progressive behaviours and drive improvements in efficiency.

2.10 We describe in Table 5 and subsequent text the alternatives that Ofgem has considered under options 2 and 3 and the reasoning behind them.

Table 5: Key features of the options considered by Ofgem

Area of regulatory framework	Option 1: Do nothing ('counterfactual')	Option 2: Recalibrated RIIO-1 ('do minimum')	Option 3: 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 fast-tracking incentive.	Effective stakeholder engagement underpinning Business Plans, with clear explanation of what "effective" means and assessed as part of the BPI. Plus: • RIIO-2 Challenge Group • Companies' User/Customer Engagement Groups • Open Hearings • 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 • 3 step equity methodology, including Capital Asset Pricing Model (CAPM), cross checks, and distinguishing between allowed and expected returns • Indexing RAV and allowed returns to CPIH	
Informational Incentives	• Early settlement • Fast-tracking reward • IQI	• No early settlement • Fast-tracking reward • Revised IQI	• No early settlement • BPI with rewards and penalties

			• Confidence-dependent Incentive Rate approach
Operational Incentives	Totex approach	Totex approach with defined use of price control deliverables	Totex approach with defined use of price control deliverables
	Totex incentive rate similar to RIIO-ED1 set using the IQI	Totex incentive rate similar to RIIO-ED1 set using the IQI Defined use of price control deliverables	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	Reset output targets to reflect improvement in performance and learnings from RIIO-ED1 Remove incentives: Incentive on Connection Engagement, Stakeholder Engagement Incentive and Losses Discretionary Reward Scheme Bespoke outputs where supported by enhanced engagement	Reset output targets to reflect improvement in performance and learnings from RIIO-ED1 Remove incentives as under Option 2 and replace them with better defined standards of performance Recalibrate output targets and incentive rates (e.g. 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 Network Innovation Competition Innovation Roll-Out Mechanism	Opportunity for Network Innovation Allowance, depending on justification New innovation funding pot for strategic challenges	Opportunity for Network Innovation Allowance New innovation funding pot for strategic challenges

Other – Competition	No early/late competition	Early/late competition where appropriate	Early/late competition where appropriate
Other - length	8 years	5 years	5 years
Risk allocation and uncertainty tools	Same types of uncertainty mechanisms used in RIIO-1	Same types of uncertainty mechanisms used in RIIO-1 Indexation of RPEs	Same type of uncertainty mechanisms used in RIIO-1 Indexation of RPEs Return Adjustment Mechanism
Strategic investment	Same as RIIO-ED1. Up-front (ex ante) allowance for all load related expenditure (LRE). Re-opener so that companies can get their revenues adjusted if they spend less/more than 20% below/above their LRE allowance.	We are yet to make a decision or propose a preferred approach in relation to strategic investment. Currently we are consulting on four different models for strategic investment.[32] We will update this draft impact assessment to reflect our preferred approach.	

[32] https://www.ofgem.gov.uk/system/files/docs/2020/07/ed2_ssmc_overview.pdf, paragraphs 4.19 to 4.58.

Financial

Allowed return on capital

2.11 At this stage, we have not yet estimated a cost of capital or proposed allowed returns on capital for the RIIO-ED2 price control. This reflects the fact that RIIO-ED2 is not due to begin until 1st April 2023 and that the mid-point of the price control is September 2025, more than 5 years from the date of this IA. Therefore, the estimates provided in this IA are not based on bottom-up assumptions for debt, equity or gearing.

2.12 However, we reviewed the approach taken in the draft IA that accompanied the Sector Specific Methodology Decision for transmission and gas distribution (the 'SSMD IA'), including the estimation of bill impacts[33], where we made assumptions for all sectors, including the ED sector, in terms of the allowed return on capital.[34] We believe the assumptions underpinning the SSMD IA to be sufficiently informative for this draft IA. We explain in further detail in chapter 4 the approach we have taken in this draft IA to assessing the impacts of a change to the allowed return on capital.

Switch from RPI to CPIH

2.13 In the ED2 Framework Decision, we decided to move away from RPI for calculating the RAV and allowed returns, in favour of using CPI or CPIH from RIIO-ED2 onwards. In the ED2 SSMC, we propose an immediate switch from RPI to CPIH for this purpose.[35]

2.14 The change in index is to discontinue the use of the RPI, which is no longer designated a national statistic. Accordingly, we would have switched inflation indices even if we decided to make minimal changes to the RIIO framework, and therefore we assume that the impact of this change in index is the same under option 2 and option 3. The counterfactual uses RPI as an estimate of inflation.

Informational incentives

[33] Please see RIIO-2 Draft IA, Appendix 4, tables 53 and 54.
[34] For further information see for example page 43:https://www.ofgem.gov.uk/system/files/docs/2019/08/ssmd_ia_updated_version_31_july_2019.pdf, page 43
[35]https://www.ofgem.gov.uk/system/files/docs/2020/07/ed2_ssmc_annex_3_finance.pdf, page 21

2.15 The asymmetry of information between the regulator and regulated companies might result in companies trying to exploit their information advantage by submitting overstated cost forecasts and softer targets to increase their prospect of high returns.

2.16 In RIIO-ED1, we used two tools to incentivise companies to submit accurate expenditure projections and better-quality Business Plans: the IQI and fast-tracking. In Chapter 1, we raised some concerns about the effectiveness of these tools. In our ED2 Framework Decision, we decided to remove early settlement and to replace IQI and fast-tracking with the BPI and a confidence-dependent incentive rate approach. This is consistent with our decisions for RIIO2 price controls in the other energy sectors.

2.17 Under option 2, we would apply an 'intensified and simplified IQI' as described in Chapter 4 and fast-tracking without early settlement. Under option 3, we would use the BPI with penalties and rewards and the confidence-dependent incentive rate approach.

Operational incentives

2.18 For all three options we will retain the totex approach where Ofgem does not distinguish between operational and capital expenditures. Under options 2 and 3, these would be complemented by price control deliverables. As discussed in Chapter 4, price control deliverables 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.

Incentive rate

2.19 Under option 2, incentive rates would be determined by an 'intensified and simplified IQI'. Under option 3, we would remove the IQI and instead set incentive rates via a confidence-dependent incentive rate approach.

2.20 Under the confidence-dependent incentive rate approach, costs included within companies' Business Plans to form totex allowances would either be determined by Ofgem to be high-confidence or lower-confidence baseline costs. The working assumption, in line with the approach used in the other energy sectors, is that high-confidence baseline costs would be assigned a 50% incentive rate and lower-confidence baseline costs would be assigned a 15% incentive rate. A single, weighted average sharing factor would then be calculated for each DNO based on the balance of high-confidence and lower-confidence baseline costs in their price control.

Output incentives

2.21 As discussed in Chapter 1, the RIIO framework evolved from Ofgem's approach to prior price controls and has a stronger focus on outputs.

2.22 Under option 1, we would retain the same outputs as in RIIO-ED1 but use information and learning from setting and running the RIIO-ED1 price control to reset targets, reflecting improvement in performance. Under option 2, in addition to resetting targets, Ofgem would also remove some output incentives, and introduce bespoke targets and price control deliverables. Under option 3, Ofgem would reset targets, remove some of the output incentives, set more stretching targets and make use of dynamic and relative targets where appropriate. It would also introduce bespoke outputs and price control deliverables.

Other tools

Innovation

2.23 In the December 2019 ED2 Framework Decision, we decided to retain an innovation stimulus package for the next regulatory period. We decided to limit the stimulus to areas where innovation might not otherwise be delivered under the RIIO-2 framework and to focus on the energy system transition and addressing consumer vulnerability. We also consider that network companies should now be delivering innovation which brings benefits to them during the course of a price control as part of their BAU activities.

2.24 This approach for electricity distribution is consistent with the decisions we took for the other price controls. It includes:

- Removing the Innovation Roll-out Mechanism re-opener.
- Introducing a new funding pot (the Strategic Innovation Fund), to replace the Network Innovation Competition, which would target future-facing strategic challenges.
- Retaining the opportunity for network companies to receive Network Innovation Allowance (NIA) funding

2.25 Other measures included as part of our framework which should support innovation include rewarding companies with ambitious Business Plans using the BPI and an enhanced stakeholder engagement process that would challenge the level of ambition within companies' innovation strategies.

2.26 We consider that an innovation stimulus package would be needed given the scale of challenges associated with the energy system transition. In the context of a shorter five-year price control period, there is a risk that these innovations may not be delivered without additional funding on top of companies' allowed revenues. This is particularly the case where payback periods from investment were longer than a five-year price control would allow.

2.27 We consider that additional innovation funding would therefore be required under options 2 and 3, targeted at projects related to the energy system transition or addressing consumer vulnerability as we believe companies may not otherwise innovate on these themes.

Competition

2.28 In our ED2 Framework Decision, we decided that we will introduce both early and late competition models in RIIO-ED2 where appropriate, as well as developing arrangements to ensure native competition[36] is undertaken in an efficient manner. Under options 2 and 3 we would apply these models of competition to suitable projects.

Length of the price control

2.29 The length of the RIIO-ED1 regulatory period is eight years. For ED2 we decided in the Framework Decision that we will introduce a shorter regulatory period of five years, in line with what we decided for the other energy sectors. We face substantial uncertainty and considerable information asymmetries in setting allowances and outputs up-front. A shorter price control can help mitigate these uncertainties.

2.30 Electricity distribution faces even more uncertainty than other sectors due to alternative decarbonisation pathways to reach Net Zero. We therefore would apply a five-year price control under options 2 and 3.

Enhanced stakeholder engagement

2.31 Stakeholder engagement plays an important role in helping Ofgem scrutinise network companies' Business Plans and also ensure that the services delivered by network

[36] Native competition is competitive processes occurring within the price control, where the incentive is native to the totex incentive mechanism.

companies appropriately reflect consumers' preferences. For example, network companies could propose bespoke outputs informed by this engagement process.

2.32 In RIIO-1, Ofgem implemented 'enhanced stakeholder engagement' in the preparation of the RIIO-1 Business Plans and during the price control period. However, we did not specify what represented 'effective engagement' with stakeholders.

2.33 Under option 2, we would issue further guidance to explain what we mean by effective engagement. Under option 3, we intend to apply the same enhanced engagement arrangements that we have introduced for the other energy sectors. In addition to requiring Business Plans to be underpinned by good quality stakeholder engagement, we would implement an enhanced stakeholder engagement model with the following key additional features:

- The establishment of Customer Engagement Groups in the electricity distribution sector. Companies are required to set up these independently Chaired groups.
- The establishment of an Independent RIIO-ED2 Challenge Group by Ofgem.
- Open Hearings prior to our draft determination for the next price control to focus on areas of disagreement raised by the groups.

2.34 We would also learn from the experience of applying this process in the other energy sectors and adapt the process to RIIO-ED2 where necessary. For example, we propose to require companies to submit only one draft business plan to the Challenge Group instead of the two submissions required in the other sectors.

Managing risks and uncertainty

2.35 Setting price control allowances up front over long periods of time brings an inherent degree of risk. RIIO-ED1 made use of tools, primarily uncertainty mechanisms, to manage risk and uncertainty during the price control. In RIIO-ED1 though, companies were exposed to some risks that were likely to be outside of their control (for example, on RPEs).

2.36 To address the allocation of risk between companies and consumers, we decided for RIIO-ED2 to introduce changes such as use of indexation, where feasible. This is in line with decisions made for the other sectors. This includes indexation of RPEs rather than setting an ex-ante allowance based on forecasts. We consider that indexation of RPEs would apply under options 2 and 3. Additional uncertainty mechanisms would continue to be implemented under options 2 and 3.

2.37 In addition to better risk allocation, we will also introduce arrangements that would adjust company returns if they were found to be significantly outside of a range that might be expected. The Return Adjustment Mechanism (RAM) would apply only under option 3.

Dealing with strategic investment

2.38 In RIIO-ED1, we provided DNOs with an up-front (ex ante) allowance for load related expenditure (LRE). This was to invest in new network capacity where they expected demand to increase beyond existing capacities.37

2.39 Where necessary, DNOs would be expected to spend more or less than their allowance if demand proved to be different from the initial forecast. To protect DNOs from significant forecasting risk, we included a re-opener so that companies could get their revenues adjusted if they had spent or anticipated spending more than 20% above their LRE allowance. We do not expect this re-opener to be used in RIIO-ED1. Overall spend by the DNOs to date in RIIO-ED1 has been 39% lower than allowances for LRE. One of the main reasons has been a lower than expected uptake of low carbon technologies (LCTs).

2.40 The forecasts for RIIO-ED1 could equally have underestimated the uptake of LCTs. Should that have been the case, the most efficient way of enabling a higher level of demand might have been to make more investment (above the ex ante allowance) in advance of LCTs being installed. This early investment might ensure LCTs can be installed more speedily and at less cost overall than an incremental approach.

2.41 However, it is not clear that the RIIO-ED1 arrangements would have resulted in DNOs making this additional investment. At least in part, companies appear to perceive a risk in spending above their baseline allowance in the expectation of demand increasing. Companies may be concerned that if demand does not materialise, Ofgem might not agree to increase their allowances to match their incurred expenditure. This risk is not offset by any material benefit to the DNO in the form of an output-related reward for making this type of early investment.

[37] During RIIO-ED1, DNOs are developing arrangements to ensure competition between traditional network investment and alternative provision of network capacity, including flexibility and smart grids technologies.

2.42 We therefore consider that a different approach to strategic investment may be required for RIIO-ED2. Our current thinking on this topic, including the four different models for strategic investment, is set out in our SSMC.[38]

[38] RIIO-ED2 Sector Specific Methodology Consultation Overview, see para 4.35.

3. Approach to draft impact assessment

This chapter explains the purpose and scope of this draft impact assessment and our approach to conducting the analysis.

Overarching approach to draft impact assessment

Purpose and scope of the draft impact assessment

3.1 The analysis in this draft impact assessment is intended to support our decision-making process on the most appropriate regulatory option for the next price control period. In this draft impact assessment we:

- consider how the main changes proposed under options 2 and 3 discussed in Chapter 2 can affect incentives, conduct and the output delivery of the network companies
- consider the interactions between the different tools used under the three regulatory options and identify areas where trade-offs between different objectives are being made
- quantify some impacts and, based on this partial quantification, estimate benefits for consumers
- take into account intended impacts and, as far as possible, any potential risks, unintended consequences and wider implications of the options considered.

3.2 This is a draft impact assessment, centred on the information we currently have in support of our decisions and proposals. The nature of some of our methodologies means that some elements can only be assessed qualitatively. Additionally, for those areas where we provide quantification, the parameters of the price control are subject to some uncertainty at this stage. This reflects the fact that a number of parameters are currently presented as 'working assumptions' and will not be fixed until the determinations stage. As we further develop our proposals and receive feedback to our consultations, we will continue to consider how best to assess the impacts of our decisions.

3.3 Uncertainty also exists where the anticipated impact may depend on financial or economic conditions at a future point in time, the composition and value of Business Plans (that we have not yet received), and the nature of behavioural response to incentives that cannot be directly observed at this time. We explain this further in Chapters 4-6.

Affected stakeholders and key impacts

3.4 We have identified the expected impacts of our regulatory options and those stakeholders that will be affected based on a combination of economic theory and evidence from previous price controls.

Affected stakeholders

3.5 We consider that the following stakeholder groups will be affected by our decisions for the next price controls (we recognise that there may be other stakeholders that are also affected by certain decisions):

- Existing and future consumers (including vulnerable consumers) - directly impacted
- Network companies and their shareholders - directly impacted
- Generators, suppliers, and flexibility service providers such as demand response aggregators - indirectly impacted through network charges
- Government and regulators, including Ofgem, BEIS and HMRC - indirectly impacted through licence fees, administration costs, and taxes.

3.6 Our assessment of impacts has largely focused on direct impacts on existing and future consumers but has also considered the direct impacts on regulated companies and their investors. Some of the impacts on consumers we have identified represent a direct transfer from companies to consumers (eg impacts from a reduction in the allowed return on capital), whereas other changes may impact consumers and companies in different ways (eg the impact of changes in totex incentive rates and informational incentives will depend on how companies respond, and the extent to which this leads to reductions in genuine cost efficiencies versus reduction in informational rents[39]).

3.7 Where possible, we are also considering distributional impacts on different types of consumers according to our updated Impact Assessment Guidance.[40] The combination of charging methodologies, which define the distribution of network charges, and the price control, which determines allowed revenues to be recovered, can have a distributional impact on different types of network users facing different proportions of costs dependent on the nature of their use of the system.

[39] These could be defined as an additional return that an economic agent receives as a result of the agent having private information.
[40] Please see Ofgem Impact Assessment Guidance.

Key impacts

3.8 The impacts that we have considered in this draft impact assessment are informed by Ofgem's principal objective and statutory duties, and the objectives and outcomes it has defined for the next regulatory period, as described in this document in the Summary: Interventions and Options section. Those impacts can be categorised in the following broad categories:

- Impacts during the next price control (Chapter 4)
- Impacts beyond the next price control (Chapter 5)
- Implementation (administration costs and practicalities) (Chapters 4 and 6)

3.9 The short/longer-term impacts have been captured in terms of the immediate impact on company revenues/profits, benefits to consumers, and the range and quality of network services the companies deliver. We have distinguished, where possible, between those impacts that may be immediately apparent, and those that may not be discernible until future price controls. Specifically, we have considered:

- Impact on network companies' revenues from
  - Changes to financial parameters
  - Changes to incentives
  - Changes to other elements
- Impact on consumers
- Distributional impacts
- Impacts on the environment

3.10 In quantifying the impacts presented in this document, we have simplified our analysis. Our estimated impacts on company revenues refer to company rewards and returns linked to performance during the RIIO-ED2 price control rather than impact on allowed revenues collected by DNOs during the next price control. The distinction is important because some of the rewards earned during the RIIO-ED2 price control will be reflected in the DNOs' allowed revenues in later periods due, for example, to the way capitalised expenditure is reflected in the RAV and the lag with which rewards on output incentives are paid out. Similarly, this means that some of the estimated consumer benefits (in terms of bill savings) are likely to materialise beyond the next regulatory period. We further explain this point when presenting impacts on network companies in Chapter 4.

Determining the counterfactual for assessing impacts

3.11 Our draft impact assessment assesses the relative impact of our regulatory options (2 and 3) for the next price controls against a counterfactual.

3.12 We make some assumptions about the counterfactual in order to measure the impact of the options considered relative to what otherwise would have happened. This allows us to compare the relative impacts associated with different options.

3.13 We have assumed that the relevant counterfactual would be the continuation of the RIIO-ED1 framework, whereby there would be no material changes to the tools used or overall decisions made.

Monetised and non-monetised impacts

3.14 Our assessment of impacts has been conducted in accordance with Ofgem's Impact Assessment Guidance[41] and consistent with the impact assessment we carried out for the transmission and gas distribution price controls. We have also drawn on the HM Treasury Green Book and Business case model.[42]

3.15 We have carried out partial quantification of impacts. We have, where data and evidence are sufficient, sought to assess impacts quantitatively, assigning monetary value where appropriate. For a number of the tools within our options, we have not sought to carry out quantitative analysis but have considered impacts qualitatively. We set out in Chapters 4 which tools we have assessed quantitatively and qualitatively.

3.16 We have focused quantification on the following two types of impacts on network companies and consumers:

- Impacts arising from **changes to financial parameters** under the options under consideration
- Impacts arising from **changes to the totex incentive rate and output delivery incentives.**

[41] Ofgem (2020), Impact Assessment Guidance; https://www.ofgem.gov.uk/publications-and-updates/impact-assessment-guidance
[42] HM Treasury (2018), The Green Book: appraisal and evaluation in central government; https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-govrnent

3.17 Our quantitative estimations are indicative. They are subject to uncertainty and based upon a number of assumptions.

3.18 For example, in the absence of data on which to base totex allowances:

- We consider a number of the impacts under a scenario in which totex allowances and company performance are assumed to be similar to that observed and forecast under RIIO-ED1.
- There are however a number of factors which may apply both upwards and downwards pressure on totex allowances within the next regulatory period.

3.19 The challenges of the energy transition and the need for replacement of certain assets may place upwards pressure on totex, but at the same time realised efficiencies and our learning over time from the application of price controls should result in downwards pressure.

3.20 At this time, we therefore consider the assumptions of similar RIIO-ED1 totex and performance levels to be reasonable. However, we intend to refresh our analysis and publish a full impact assessment as more data becomes available at the draft determination stage.

3.21 A number of the quantified and non-quantified impacts are subject to uncertainty arising from the response by network companies to the combination of tools and parameters employed under each option, and the demand for network services.

3.22 We consider that uncertainty on quantified and non-quantified impacts is greatest under option 3, where the extent of change relative to the counterfactual is larger than under option 2. To allow for this uncertainty in relation to option 3 we provide a range of estimates of impacts. We present a 'low impact case' in which the impacts are at the lower end of our expectations, a 'high impact case' which represents the upper range of potential impacts relative to the counterfactual and a 'central case' which sits between these. We discuss further in Chapter 6 specific uncertainties associated with our quantified impacts.

4. Impacts on companies and consumers in the next regulatory period

In this chapter, we present our analysis of the direct impacts arising from options 2 and 3 on consumers and network companies compared to the counterfactual. Where possible, we present quantified or partially quantified impacts. In other areas, we consider the impacts using qualitative analysis.

Summary of impacts

4.1 In this chapter we assess the impacts of options 2 and 3 arising from changes to:

- financial parameters
- operational incentives
- informational incentives
- output delivery incentives
- other elements of the regulatory framework
- administration and resource costs.

Summary of impacts on consumers

4.2 We find that consumers would benefit by approximately £2 billion (excluding switch to CPIH) under our central case within option 3, compared to the counterfactual. We note that most of the expected quantified impacts on consumers arise from transfers from companies to consumers.

Table 6: Impact on consumers of options 2 and 3 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 2	Option 3	Option 3 Range	
				Low impact	High impact
Changes to financial parameters	Return on capital	**1,778**			
		Network companies will receive lower returns on invested capital.			
	Switch to CPIH	**-1,115**			
		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.			

Area of package	Mechanism	Option 2	Option 3	Option 3 Range	
				Low impact	High impact
Changes to incentives	Totex Incentive Mechanism and informational tools	**0**	**61**	21	64
		No change from counterfactual	A combination of lower incentive rates and the introduction of our new information tools may increase the proportion of cost efficiencies relative to information rents, benefitting consumers further.		
	Output Delivery Incentives	**12**	**99**	19	154
		Consumer benefits may reduce where companies reduce delivery of outputs as a result of removal of incentives.	Consumer benefits may reduce where companies reduce delivery of outputs as a result of removal and re-calibration of incentives, but consumers will benefit from more ambitious targets and minimum standards of performance.		
	Price control deliverables	Consumers will benefit from tying network company expenditure (totex allowances) more closely to delivery. However, consumer benefits may reduce because network companies will have less flexibility to deliver cost efficiencies.			
Changes to other elements	Return adjustment mechanisms	**0**	**17**	63	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 greatly 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. We expect the extent of innovation funding to be broadly in line with that observed in RIIO-1.			
	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 3 given introduction of additional tools.			
Total quantified impacts		**674**	**839**	**765**	**880**
Total, not including switch to CPIH		**1,790**	**1,955**	**1,881**	**1,996**

Summary of impacts on companies

4.3 We find that consumers would benefit by approximately £2 billion (excluding switch to CPIH) under our central case within option 3, compared to the counterfactual. We note that most of the expected quantified impacts on consumers arise from transfers from companies to consumers.

4.4 We summarise below the estimated impacts on company revenues. As explained in Chapter 3, 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. Specifically, our quantification disregards the slow money component, as it is further explained in footnote [43].

4.5 We find that company revenues would decrease by approximately £1.8 billion under option 2 and by £2.1 billion under option 3 (central case) compared to the counterfactual, over a five-year period.

Table 7: Impact on network companies' revenues of options 2 and 3 compared to counterfactual - quantified and non-quantified impacts, net present value over a five-year price control (£m 2023/24 (CPIH))[43]

Area of package	Mechanism	Option 2	Option 3	Option 3 Range	
				Low impact	High impact
Changes to financial parameters	Return on capital	**-1,778**			
		Network companies will receive lower returns on invested capital.			
	Switch to CPIH	**1,115**			
		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	**0**	**-201**	-52	-312
		No change from counterfactual	In addition to quantified impacts, new totex incentive rate setting mechanism and new information tools may increase the proportion of cost efficiencies relative to information rents		
		-12	**-99**	-19	-154

[43] Figures for Totex Incentive Mechanism are expenditures not revenues. In the long run the net present value of these measures, should be the same. However in the 5 year RIIO-2 period they may have different impacts depending upon whether they are fast money or slow money (capitalised into the RAV). We have not modelled this factor in this Impact Assessment. Therefore, our estimates in the table, should be considered an overestimate of the impact on companies' revenues.

Area of package	Mechanism	Option 2	Option 3	Option 3 Range	
				Low impact	High impact
	Output Delivery Incentives	Consumer benefits may reduce where companies reduce delivery of outputs as a result of removal of incentives.	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	Tying totex allowances more closely to delivery may reduce some scope for company underspends relative to the counterfactual.			
Changes to other elements	Return adjustment mechanisms	**0**	**-17**	-63	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 greatly 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	Small reduction in potential revenues as a result of removal of the innovation roll-out mechanism. Do not anticipate significant difference in revenues from company perspective, however final design still to be determined.			
	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		**-674**	**-979**	**-796**	**-1,128**
Total, not including switch to CPIH		**-1,790**	**-2,095**	**-1,912**	**-2,244**

Impacts from changes to financial parameters

4.6 We refer readers to the draft IA that accompanied the Sector Specific Methodology Decision for transmission and gas distribution (the 'SSMD draft IA') for background detail on how we have calculated impacts from changes to financial parameters.[44] Given the early

[44] 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

stage of the ED2 price control, and as described in Table 5 above, we make the same assumptions for options 2 and 3.

4.7 To estimate the impact of changing the allowed return on capital, and the impact of the switch from RPI to CPIH, we needed an ED2 RAV estimate. To derive this we used the latest available RAV forecast to the end of March 2023, as submitted by the companies and published in the most recent Regulatory Financial Performance Reporting reports.[45] We converted the RAV value from 2012/13 prices into 2023/24 prices and assumed further growth of 1.4% per annum based on historic growth for 2.5 years to the mid-point of ED2. This provided a RAV estimate of £32bn (2023/24 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.

Allowed return on capital

4.8 We have followed the approach taken in the SSMD draft 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.46 Accordingly, we multiply the RAV estimate for ED2 by the difference in the WACC allowance, as described in the SSMD draft IA.[47] We also follow the same approach to the impact of gearing and the impact of tax, as described in the SSMD draft IA.[48]

4.9 This assumes an allowed return on capital of 2.1% (RPI-real) for RIIO-ED2 and a counterfactual allowed return on capital of 3.3% (RPI-real) based on RIIO-ED1. We therefore assume, for counterfactual option, 3.3% returns on capital, and for options 2 and 3, 2.1% returns on capital.

4.10 Note that we may, in future IA work for ED2, refine our view on the allowed returns on capital, for all three options. Doing so will allow us to reflect new information, consultation responses to the ED2 SSMC,49 the emerging position for ED2 and the final

[45] https://www.ofgem.gov.uk/publications-and-updates/regulatory-financial-performance-annex-riio-1-annual-reports-2018-19
[46] 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
[47] See paragraph 4.15: https://www.ofgem.gov.uk/system/files/docs/2019/08/ssmd_ia_updated_version_31_july_2019.pdf#page=43
[48] See paragraphs 4.19 and 4.23: https://www.ofgem.gov.uk/system/files/docs/2019/08/ssmd_ia_updated_version_31_july_2019.pdf#page=44
[49] https://www.ofgem.gov.uk/publications-and-updates/riio-ed2-sector-specific-methodology-

position for ED1. We may also distinguish between debt and equity changes in a similar way to the approach taken in our IA recently published alongside draft determinations for other RIIO-2 price controls.[50]

Switch from RPI to CPIH

4.11 As stated in the May 2019 Sector Specific Methodology Decision Finance Annex, we expect the change from RPI to CPIH to be NPV neutral.[51] 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.

4.12 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. We assume a wedge of 0.813% for these purposes in this IA.

Impacts from changes to operational incentives

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

4.14 Companies have an incentive to underspend their totex allowance because they earn additional revenues according to their totex incentive rate. It is useful to distinguish between cost savings due to genuine efficiencies which result in both company and consumer benefits (through the totex incentive mechanism) 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.

consultation

[50] https://www.ofgem.gov.uk/system/files/docs/2020/07/draft_determinations_-_impact_assessment.pdf

[51] See paragraphs 6.19 to 6.25 here: https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_finance.pdf#page=108

4.15 As mentioned in Chapter 2, we incorporate these objectives into option 3, which reflects new levels for the totex incentive rate. In this case, the totex incentive rate would be determined based on a confidence-dependent approach. Under this approach, we would determine 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. A higher totex incentive rate would apply to the high-confidence costs and a lower totex incentive rate to the lower- confidence costs. A single totex incentive rate would then be determined for each company on a weighted average basis.

4.16 While option 3 reflects the introduction of the confidence-dependent incentive rate approach and lower incentive rates compared to RIIO-1, the other two options reflect the RIIO-1 counterfactual and slight modifications to it:

- Under option 1, the totex incentive rate would be based on the IQI mechanism used in RIIO-1. In RIIO-ED1, the sector average incentive rate is 57.9% with the fast-tracked WPD having the highest totex incentive rate at 70%
- Under option 2, the totex incentive rate would also be based on IQI, with minor revisions that we do not consider would affect the totex incentive rates. Therefore, we estimate no impact related to the TIM under option 2.

Quantification approach

4.17 To model this approach in our impact assessment, we adopt a similar methodology to the one we used to assess the impact of new totex incentive rates for the other energy sectors.[52]

4.18 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. 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 from efficient performances, a lower incentive rate might affect the companies' behaviour and level of effort towards efficiency.

[52] Please see paragraphs 4.58 to 4.62. SSMD Draft Impact Assessment.

4.19 We have therefore structured 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 whilst a greater one 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 remained the same regardless of the totex incentive rate.

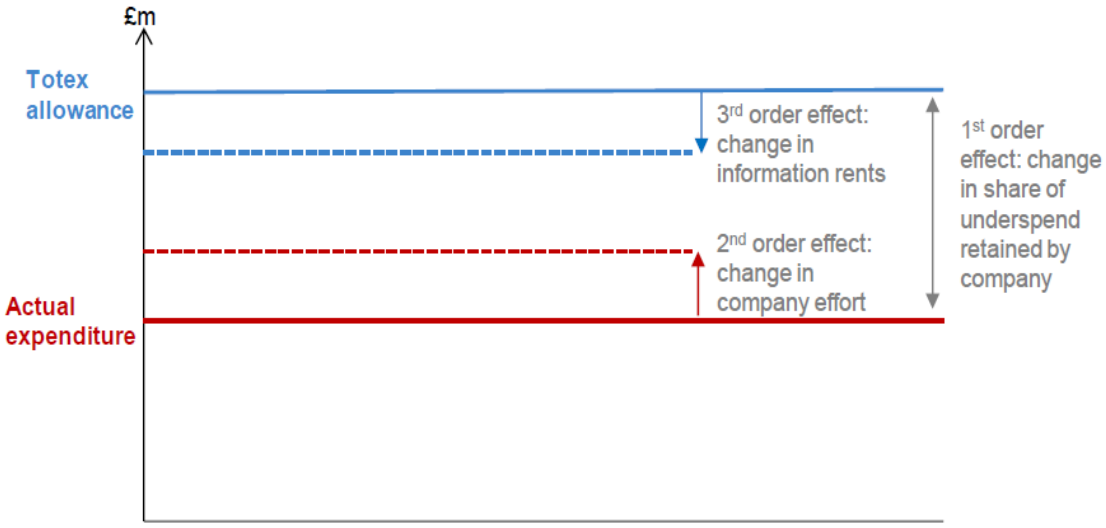
- As a **second order effect**, we consider the behavioural response of companies arising from a reduction in the totex incentive rate. A reduction in the totex incentive rate may result in companies investing lower levels of effort in achieving underspends. As an approximation, we assume that all of this reduced underspend reflects a loss of genuine cost efficiencies 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 compared to the first order effect. The combined first and second order effects means 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. While the second order effect assumes 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.

4.20 We illustrate these effects in Figure 5.

Figure 5: Illustration of the three orders of effect under the TIM



4.21 Under the confidence-dependent incentive rate approach, the totex incentive rate would be lower than under the RIIO-1 counterfactual. Based on the framework applied in the other energy sectors, and our current thinking around the implementation of this approach for ED2, we envisage incentive rates could vary between 15-50%.

4.22 To capture this range of potential outcomes, we analyse three different scenarios ranging from a "high impact case" where the totex incentive rate would be set at 15%, a "central case" with 32.5% totex incentive rate and a "low impact case" with a 50% totex incentive rate. In practice though, we expect totex incentive rates to be higher than the minimum of 15% under option 3. This is because a weighted average totex incentive rate of 15% would only be applied if a Business Plan contained no costs assessed to be high-confidence baseline costs.

4.23 To estimate these effects we would need to know, in addition to the assumed incentive rates, company totex allowances in RIIO-ED2 by network company as well as the level of over/underspend (in %) for each network company relative to the allowance in RIIO-ED2. In the absence of Business Plan data for RIIO-ED2, we rely on the approach that we used for the draft impact assessment of price control measures for the other energy sectors, i.e. using RIIO-1 allowances and totex performance levels as a proxy for RIIO-2. Using these assumptions, the counterfactual RIIO-1 is based on the totex incentive rates and level of underspend observed under RIIO-1.

4.24 Under option 3, we therefore estimate the first order effect by applying the three potential incentive rates to the level of underspend observed in RIIO-1.

4.25 To capture the second order effect, we need to understand to what extent companies change behaviour as a result of facing lower upsides for cost efficiency.

4.26 As there is no reliable evidence on the level of this behavioural response, we model a range of potential responses using different "mapping factors" reflecting the reduction in effort that companies may make (captured by a % reduction in underspend) in response to a % reduction in totex incentive rates. We report these assumptions in Table 8.

Table 8: Mapping factors

Case	Mapping	Reduction in totex incentive rate (%)	Reduction in underspend (%)
Low case	1:0	1	0
Central case	2:1	1	0.5
High case	1:1	1	1

4.27 The magnitude of second order effects depends on the mapping factor assumption:

- As a lower bound, we assume a 1:0 mapping, where companies do not display a behavioural response to lower incentives rates and there is no reduction in underspend. This means the second order effect will be 0.
- As a higher bound, we assume the reduction in the incentive rate is perfectly matched by the reduction in underspend. We refer to this as a 1:1 mapping. This results in a large second order effect.
- For the central scenario, we consider a 2:1 mapping, where companies will exert less effort and generate lower underspend if incentive rates are lower but the reduction in underspend is proportionally less than the reduction in incentive rates. For each 1% reduction of the incentive rate there will be only a 0.5% reduction in underspend.

4.28 Under the first and second order effects, we assume that 100% of company underspends reflect genuine cost efficiencies. However, in practice, a reduction in the totex incentive rate would reduce the incentive for information rents as well as genuine cost efficiencies. We may therefore assume that reduced underspends reflect some combination of the two. We qualitatively consider the third order effect and assume that a proportion of

lost underspend reflects a reduction in information rents as opposed to lost cost efficiencies.

Estimated impacts

First order effect only

4.29 When we assume that the reduction in incentive rates under option 3 generates only a first order effect and no change in behaviour or underspend, company revenues decrease by between £36.60 million and £274 million depending on the scenario. As the incentive rate decreases the impact on companies increases. Under lower incentive rates, companies are entitled to retain less of their underspend and their revenues will decrease more compared to option 1.

4.30 As shown in Table 9, consumer benefits from the reduction of the incentive rate perfectly match the decrease in company revenues. Underspend does not change if we assume there is no second order effect. The introduction of lower incentive rates compared to the counterfactual acts as a transfer of wealth from companies to consumers.

Table 9: Impact from changes to totex incentive rates under option 3, over a five-year price control (£m 2023/24, CPIH, discounted) – first order effect only[53]

Impact	High impact case 15% TIM	Central case 32.5% TIM	Low impact case 50% TIM
Company revenues	-274.65	-155.63	-36.60
Consumers	274.65	155.63	36.60

Second order effects

4.31 Once we include second order effects, companies will exert less effort to be efficient when facing lower incentive rates under option 3. As a result, companies' revenues will be lower compared to option 1 not only because businesses are entitled to retain a lower share of underspend but also because the achieved underspend will be lower.

4.32 As shown in Table 10, the estimated reduction in companies' revenues in presence of second order effects ranges from £52-£68 million to £311-£348 million over RIIO-ED2

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

depending on the mapping factor and incentive rate assumed. This is higher than under a first order effect only scenario.

4.33 Consumers benefit less from lower incentive rates under TIM when companies' incentive to be cost efficient reduces and this results in lower underspend. Since there is a lower level of underspend, there is no longer a simple transfer of lost revenues from companies to consumers. For example, in a central scenario with a 32.5% incentive rate and a 2:1 mapping factor, companies' revenues decrease by £201 million but consumers benefit only by £61 million compared to the counterfactual.

Table 10: Impact from changes to totex incentive rates under option 3, over a five-year price control (£m 2023/24, CPIH, discounted) – first and second order effects[54]

Impact	High impact case 15% TIM	Central case 32.5% TIM	Low impact case 50% TIM
Company revenues			
Mapping 1:0	-274.65	-155.63	-36.60
Mapping 2:1	-311.79	-201.02	-52.47
Mapping 1:1	-348.92	-246.41	-68.35
Consumers			
Mapping 1:0	274.65	155.63	36.60
Mapping 2:1	64.21	61.35	20.72
Mapping 1:1	-146.23	-32.92	4.85

Third order effects

4.34 Under the second order effect, we have assumed that all reduction in underspend reflects lost cost efficiencies. However, a lower totex incentive rate might change companies' incentives to overstate their cost forecasts. On one hand, companies may reduce forecast expenditure since potential windfall gains arising from overstated costs would be lower. On the other hand, companies might be inclined to overstate their spending forecasts even more if they are targeting a certain level of returns. With lower totex incentive rates, DNOs will benefit less from any given level of underspend. In this

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

case, companies may try to make up for lost returns by increasing their level of underspend either through genuine efficiencies or capturing more information rents.

4.35 Therefore, a reduction in underspend may represent a change in the mix of information rents and cost efficiencies. If information rents are reduced, a proportion of the reduction in underspends could be attributed to lower totex allowances as well as from lower cost efficiencies relative to the counterfactual. The implication for companies would be relatively small. The reduction in underspends would have a similar effect whether it reflects a reduction in totex allowances due to lower information rents or lost cost efficiencies.

4.36 This is not the case for consumers. Cost efficiencies benefit consumers who share a proportion of these efficiencies via the totex incentive rate. However, information rents result in transfers from consumers to companies without any corresponding benefit in return. With a lower totex incentive rate however, consumers will be able to claw back some of the information rents from businesses and reduce the "transfer" to companies.

4.37 Under the second order effect we have assumed that 100% of the reduction in underspends resulted from lost cost efficiencies. Our estimates of consumer benefit resulting from the first and second order effects can be considered to be conservative to the extent that companies do not further overstate their forecast expenditure in response to lower totex incentive rates.

Breaking point analysis

4.38 As shown in Table 8, option 3 has the potential to bring significant benefits for consumers provided that the second order effect is not too high i.e. companies do not reduce too much their efforts towards efficiency too much. However, option 3 may result in negative benefits to consumers when a reduction in the incentive rate leads to a significant reduction in underspend.

4.39 To better identify the level of the mapping factor required for consumers to benefit under option 3 we have carried out a "breaking point analysis" (presented in Table 11) as follows:

- We identified the percentage reduction in outperformance in ED2 compared to ED1 that would fully offset the consumer benefits from having a lower totex incentive rate.

- We translated this into the level of mapping factor at which consumers would no longer benefit from the incentive rates we assume under option 3.

- Our breaking point analysis does not take into account the third order effect, which would increase consumer benefits under all conditions.

Table 11: 'Breaking point analysis' results: mapping factor at which consumers would no longer benefit from changes to the totex incentive rate

	Totex incentive rate = 15%	Totex incentive rate = 32.5%	Totex incentive rate = 50%
Reduction in outperformance ED2 vs ED1 that offsets benefit from lower incentive rate.	50.4%	37.6%	15.7%
Mapping factors.	1.46:1	1.17:1	0.82:1
Reduction in underspend relative to a 1% reduction in incentive rate.	0.68%	0.86%	1.22%

4.40 The analysis shows that the companies' behavioural response to lower incentive rates would have to be significant to offset the consumer benefit from lower totex incentive rates. In the extreme case of totex incentive rates set at 15%, there would need to be a 50% reduction in average sector underspend (equivalent to a 0.68% reduction in underspend for each 1% reduction in incentive rate relative to RIIO-1) to remove all consumer benefit.

Impacts from changes to informational incentives

4.41 In RIIO-ED1, Ofgem used two tools to incentivise companies to submit accurate expenditure projections and better-quality Business Plans: the IQI and fast-tracking.

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

4.43 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 upfront income as well as higher totex incentive rates, compared to slow-tracked companies.

4.44 As discussed in Chapters 1 and 2, we have considered making significant changes to these tools (option 2) and replacing them with new instruments (option 3).

4.45 The most direct impact from the use of these tools will arise from the rewards and penalties which companies face, and 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 by companies, or fall if companies are required to pay penalties.

4.46 We have not attempted to quantify the size of the reward/penalty that companies might face in this draft impact assessment as this would require making assumptions about the content and quality of company Business Plans. Neither have we attempted to quantify the behavioural impact on companies arising from the new tools, nor the effectiveness of the new tools in countering companies' incentives to overstate totex allowances compared to the counterfactual. As a result, we are not quantifying how the impact on companies would translate to consumers.

4.47 However, we provide below a qualitative assessment of the tools that would be employed under options 2 and 3 against the counterfactual.

Option 2

4.48 Under option 2, we would apply a modified IQI and remove the early settlement element of fast-tracking.

4.49 We would make changes to IQI parameters to:

- Sharpen the differentiation in penalties and rewards between companies that submit accurate and inaccurate cost forecasts
- Introduce a sharper reduction in the absolute level of the IQI additional payment, the more a company's forecast diverges from our own.

4.50 In addition, we would also publish the IQI matrix in advance as this could provide a strong indication of potential rewards and penalties to companies. This should allow

companies to optimise their totex submissions, while internalising the penalties that they may face for totex submissions which are likely to exceed our own view.

4.51 Under option 2, we would also remove the early settlement element of fast-tracking but retain an upfront reward/penalty based on the quality of Business Plan submitted.

4.52 The revised IQI might reduce companies' incentives to overstate their costs as penalties would be sharper. Consumers would then benefit to the extent that companies will submit lower, less overstated, costs. However, we continue to consider that there would be issues which would undermine its effectiveness:

- It is likely that the cost forecasts submitted by companies will continue to influence our own cost assessments, especially where there is more limited scope for benchmarking. This would invalidate one of the key assumptions required for the IQI to work under any calibration and therefore introduces incentives for strategic submissions.
- There is uncertainty about future costs due to technological and policy changes. Since the IQI does not distinguish between lower-confidence and high-confidence costs, it is not possible for the determination of the totex incentive rate to take into account the varying degree of uncertainty in setting baselines for different cost categories.

4.53 Therefore, we consider that option 2 would reduce the relative proportion of information rents to cost efficiencies to some extent. However, potentially significant information asymmetry issues would remain.

Option 3

4.54 Under option 3, we would remove the IQI and set totex incentive rates via the confidence-dependent incentive rate as described earlier in this chapter.

4.55 We would also introduce a BPI to encourage companies to submit ambitious Business Plans. The BPI would incorporate assessments of both totex costs and quality. The assessment of these two elements, through a four-stage process, would result in a net penalty or reward of +/-2% of allowed totex. For the cost assessment element, the BPI would distinguish between high confidence and lower confidence costs as for the setting of the totex incentive rate.

4.56 Our differentiation between high and lower-confidence costs within the confidence-dependent incentive rate approach may have two relevant effects:

- It encourages companies that are seeking a higher totex incentive rate to provide higher confidence in their cost submissions, for example by providing independent baseline information that can support our cost assessment. By incentivising 'confidence', this should have the effect of reducing information asymmetries and, in turn, the potential for information rents.
- It protects against a high level of information asymmetry and in areas where technological change may undermine our ability to base costs on historic data by assigning a lower totex incentive rate. Therefore, where these problems are greatest, the increased potential for information rents is reduced by lower totex incentive rates. This also provides protection to companies. Where uncertainty is high in relation to future developments, companies will be protected via a lower totex incentive rate.

4.57 Overall, we consider that the delineation of high and lower-confidence costs (both in the BPI and for the setting the level of the sharing factor) and the incentives that this places on companies to provide us with confidence in their totex cost forecasts should help to mitigate the risks of information asymmetry. Where information challenges remain, consumers would be protected through a lower totex incentive rate which reflects the greater proportion of lower-confidence costs in companies' submissions.

4.58 We consider that this is likely to result in a reduction in the level of information rents while maintaining incentives for genuine cost efficiencies relative to option 2 and, to an even greater extent, relative to the counterfactual. The lower risk/return balance reflected in the potential for lower totex incentive rates where uncertainty is greatest may be appropriate in the context of lessons learned from RIIO-1.

4.59 We do acknowledge that the introduction of new mechanisms brings implementation and design risks and consider these further in Chapter 6.

Impacts from changes to output delivery incentives

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

4.61 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.

4.62 In this draft impact assessment, we do not present individual impacts of each ODI, PCD and LO. Rather, we consider the broader impact of the way in which we would apply these tools under options 2 and 3. The underlying assessment for ODIs is however based on a bottom-up approach that considers the potential reward and performance levels for each ODI.

4.63 Under the options considered, we would revise the application of ODIs in a number of ways.

4.64 Under option 1 (the counterfactual), we would retain the same outputs as in RIIO-1 and use the latest information obtained from the companies to reset targets to reflect improvement in performance over the RIIO-ED1 period. We would also take into account lessons learned from the RIIO-1 price control in areas such as target setting.

4.65 Under option 2, in addition to resetting targets (as under option 1), we would also:

- **Remove incentives** where we do not expect these incentives to deliver benefits for consumers that outweigh the associated costs (e.g. incentive payments).
- **Introduce bespoke outputs** which allows for the adoption of incentives targeted more effectively at consumers of a given company.
- **Use PCDs** to link allowed revenue more directly to the delivery of outputs. For example, we would tie cost allowances to delivery of certain outputs and protect consumers against non-delivery.

4.66 Under option 3, in addition to the changes outlined under option 2, we would also:

- **Recalibrate the balance between incentive rewards and consumer value.** We designed RIIO-1 as a high-powered incentive regime where the focus was on maximising the incentives on companies to deliver outputs. By setting the value of incentive payment closer to plausible ranges of company costs and further

from potential consumer value, we would more accurately mirror the outcomes of competitive markets and we would allow consumers to benefit more where outputs are delivered. At the same time we would need to acknowledge the trade-off with the strength of incentive placed on companies to deliver these outputs. In some instances, this recalibration could be done by reducing incentive rates, tightening caps and/or collars around incentive rewards and setting more stretching targets than we have done under RIIO-1.

- **Use of relative and dynamic ODIs** where consumer value is particularly difficult to assess. This would allow relative performance between companies to define incentive payments, protecting consumers against outperformance which we do not consider to reflect consumer value. This would also ensure that ODIs remain sufficiently challenging over the length of the price control and across each sector.

4.67 We summarise the options for ODIs and PCDs below.

Table 12: Summary of options for ODIs and PCDs

Summary of options	Option 1 (counterfactual)	Option 2	Option 3
Number of incentives	Same as for RIIO-1	Limited number of incentives removed	Limited number of incentives removed
Incentive target calibration	Updated to reflect data on performance	Updated to reflect data on performance	Updated to reflect data on performance and recalibrated to set more challenging targets and revise balance between company incentive and consumer value
Incentive rates and caps and collars	Same as for RIIO-1	Same as for RIIO-1	Incentive rates and/or caps and collars may be reduced for some

Summary of options	Option 1 (counterfactual)	Option 2	Option 3
			incentives to reflect change in balance between company incentive and consumer value
Dynamic/relative incentives	Only where they exist in RIIO-1	Only where they exist in RIIO-1	Applied where appropriate
Bespoke incentives	No	Yes	Yes
PCDs	PCDs used in some Areas	Define PCDs to increase alignment of allowed revenue and output delivery	Define PCDs to increase alignment of allowed revenue and output delivery

4.68 In the section below we consider first the impacts of options 2 and 3 in relation to ODIs. We then consider impacts resulting from PCDs.

Analysis of ODIs impact

4.69 In RIIO-1 we observed a general trend towards outperformance in ODIs. In RIIO-2 we would expect company performance against targets to be lower than in RIIO-1 reflecting the fact that targets for incentives where companies have delivered improvements in RIIO-1 would become tougher in RIIO-2. We would also take account of lessons learned from the application of the RIIO-1 price control in setting targets for RIIO-2, for example by delaying target setting such as to ensure that targets reflect the latest available performance levels. Thus, we assume that only a portion of the RIIO-1 performance can be replicated in RIIO-2 to derive a view of potential revenues earned by companies under option 1.

4.70 Under option 2, the impact relative to the counterfactual arises due to reduction in the number of incentives. Where incentives remain in place, we assume that companies will deliver outputs and so earn revenues which are broadly aligned with those assumed under option 1. Therefore, our quantification of option 2 reflects the reduction in revenues associated with those incentives that we would remove under this option.

4.71 We have not attempted to quantify the impact of introducing bespoke outputs as these will be proposed by companies when they submit their Business Plans. Therefore, bespoke outputs cannot be assessed in this draft impact assessment. In the absence of historic performance data, we have also not incorporated assumptions on performance under any new ODIs that may be introduced – for example in relation to stakeholder engagement. In combination, this may increase the scope for company rewards and penalties resulting from the ODIs to some extent.

4.72 Overall option 3 represents a reduction in the level of risk associated with the ODIs, where incentive rates may be reduced or caps and floors narrowed.

4.73 Given the outperformance observed in RIIO-1, we expect that re-calibration of incentive targets under option 3 would lead to a reduction in the extent of 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), lowering incentive rates, tightening caps and floors but also introducing performance dead bands such that only top performers are rewarded.55 However recalibrating ODIs will also reduce the risk associated with penalties faced by companies should they fail to meet targets.

4.74 For option 3, we have estimated the revenues that we would expect to see companies achieve under three scenarios, reflecting different levels of recalibration of incentives and company performance against targets. 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.

4.75 The scenarios range between a 'high impact' case where we adopt a tighter recalibration of incentives mechanisms (with more stretching targets and/or lower incentives rates and caps/collars) and we assume companies overall fail to outperform

[55] For example, we propose to apply a dead band for calculating rewards and penalties for the Customer Satisfaction Survey.

targets and a 'low impact' case where Ofgem adopts only a slight recalibration of ODIs and companies perform well against targets, similar to options 1 and 2. The three scenarios used in this case are meant to cover the broadest range of performance considered plausible.

4.76 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 re-calibration and company performance will be further refined as we develop our policy on incentives in detail and should not be taken to represent a final view of expected revenues earned by companies.

Table 13: Definition and assumptions under each scenario of revenue impacts (Option 3 analysis)

Feature	High impact case	Central case	Low impact case
Target calibration	Significantly more challenging than under the counterfactual	More challenging than under the counterfactual	Slightly more challenging than under the counterfactual
Incentive range of outcomes (e.g. incentive rates, caps and floors)	Narrower than under the counterfactual. Reduced upside and downside	Slightly narrower than under the counterfactual. Reduced upside and downside	Similar to the counterfactual
Assumed performance levels	No overall outperformance	Companies only slightly outperform incentives	Similar to counterfactual. Some significant outperformance[56]

4.77 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, i.e. 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.

Option 2 – Results

[56] Performance levels for ODIs are defined based on RIIO-1 observed outperformance relative to the maximum reward/penalty available to DNOs in RIIO-1. 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, however this performance is lower than under RIIO-1.

4.78 Under option 2, we would expect consumer benefits to increase (and company revenues to reduce) by approximately £2.7 million per year (central case, 2023/24 CPIH) relative to the counterfactual. This amounts to approximately £12 million (2023/24 CPIH) over the five-year price control. This reflects the expected reduction in revenues associated with removing some incentive mechanisms under option 2 based on the share of these ODIs in overall rewards earned in RIIO-1.

Table 14: Impacts of ODIs under option 2 (£m 2023/24 (CPIH))

	Annual	Total five-year price control period (discounted)
Impact on companies under option 2 relative to counterfactual	-2.66	-11.99
Impact on consumers under option 2 relative to counterfactual	2.66	11.99

Option 3 – Results

4.79 Results for our high, low and central cases for option 3 are presented below.

Table 15: Impacts of ODIs under option 3 – annual (£m 2023/24 (CPIH))

	Impact on companies relative to counterfactual	Impact on consumers relative to counterfactual
High impact case	-34.09	34.09
Central case	-21.99	21.99
Low impact case	-4.31	4.31

4.80 Under option 3, we would expect consumer benefits to increase (and company revenues to reduce) by approximately £22 million per year (2023/24 CPIH) under the central case scenario relative to the counterfactual over the five years of the price control. This would amount to approximately £99.28 million (2023/24 CPIH) under the central case over the five years price control, as shown below. These impacts result from a reduction in incentive rewards earned by companies and a reduction in bills faced by consumer. We expect that the biggest reductions in rewards would occur under the IIS and Broad Measure of Customer Service (BMCS) incentives reflecting the fact that these are the areas where DNOs have earned the largest rewards in RIIO-1.

Table 16: Impacts of ODIs under option 3 relative to the counterfactual over a five-year price control (£m 2023/24 (CPIH)) - discounted

	Impact on companies	Impact on consumers
Option 3 estimated revenues (high impact case)	-153.93	153.93
Option 3 estimated revenues (central case)	-99.28	99.28
Option 3 estimated revenues (low impact case)	-19.45	19.45

Qualitative assessment of company behavioral responses under option 3

4.81 In addition to this direct impact, it is also important to consider the less direct impacts on companies' behaviour which will in turn impact consumers.

4.82 Where our changes to incentives result in better calibrated and more stretching targets, economic theory suggests that this should not affect company performance as long as the marginal incentive rate does not change. However there are reasons why more stretching targets may lead to companies putting more effort in delivery of outputs, thus improving quality of service, benefitting consumers:

- If companies seek certain levels of return (or are loss averse), more stretching targets may encourage them to employ more effort in gaining the required returns (or avoid losses) than they would otherwise do even if the marginal incentive rate remains the same.
- Where more challenging targets decrease the likelihood of the incentive cap being reached, this may encourage companies to deliver further improvements in performance.

4.83 Conversely, where financial incentives have been removed, where we reduce the incentive rates or where we introduce relative performance incentives, we may expect companies to reassign some of the effort that they would have otherwise invested in that area. This may result in reduced outputs and lower quality of service.

4.84 Where we propose to remove incentives, we consider that the benefits brought by these incentives do not justify the costs placed on consumers through higher bills. This may the case because we now expect companies to deliver certain outputs as part of business as usual activity funded through baseline allowances. For example, we consider that

additional, within period, rewards should no longer be needed for DNOs to deliver high-quality stakeholder engagement and therefore propose to remove the Stakeholder Engagement and Consumer Vulnerability (SECV) incentive.

4.85 Therefore, any reduction in outputs as a result of removing these financial incentives should not outweigh the benefits to consumers from removing these incentives. In some cases, companies may still be incentivised to deliver quality of service through other areas of the price control, for example through the BPI. In addition, opportunities for companies to propose bespoke outputs could allow them to deliver outputs that consumers value the most.

4.86 A reduction in maximum rewards and penalties will have an impact where it results in a company expectation that the cap or floor is now more likely to be hit, or where the cap or floor is actually reached. Where this is the case, companies may exert less effort to improve performance on that ODI given that further improvements are no longer likely to affect their revenues. On the other hand, tighter caps and collars will also reduce risks for both consumers and companies stemming from the challenges of calibrating ODI targets.

4.87 We also note that incentives need to be balanced appropriately against other areas of the RIIO-2 framework such as the TIM. If delivery of better output levels requires increased spending by companies, then improved performance against the ODIs can be expected to result in lower performance against totex allowances. This means that where companies may reduce the level of effort in delivering certain outputs because of changes we are making to ODI calibration, this may also lead to higher levels of underspend against totex allowances. This will mitigate some of the impact on companies of reduced revenues from ODIs as well as the impact on consumers from lower quality of service.

Use of PCDs under options 2 and 3

4.88 Under options 2 and 3, we would use PCDs, where appropriate, to specify outputs that are directly funded through the price control. PCDs will have specific revenue allowances assigned to them and will strengthen the mechanisms linking price control allowances to delivery of outputs, in comparison to RIIO-1.

4.89 This will ensure that companies deliver the outputs that consumers are paying for. In case of non-delivery or sub-standard delivery, Ofgem will be able to adjust allowed revenues accordingly.

4.90 However, we recognise that over-specifying price control outputs can reduce companies' abilities to innovate and find more efficient solutions to deliver outcomes that benefit consumers. This can reduce the extent to which companies are able to identify and deliver legitimate cost efficiencies within the price control period, for example where this would lead to a risk that these efficiencies were interpreted as non-delivery of PCDs. We intend to mitigate this impact by ensuring that we take a proportionate approach to setting PCDs and, when PCDs are assessed, we will take into account genuine efficiencies and changes in circumstances within our assessment.

4.91 PCDs are meant to tie cost allowances to what DNOs say they will deliver in their Business Plans. They should also allow DNOs to deliver cost efficiencies where these are identified within period. Overall, we consider that our approach to PCDs under options 2 and 3 would strike an appropriate balance between these two objectives.

Other impacts

Impacts resulting from the introduction of a RAM

4.92 As discussed in Chapter 1, uncertainties and information asymmetry expose the regulator to the risk of setting allowances or targets that are not challenging enough for companies.

4.93 To prevent the risk of companies earning excessive returns in a changing system, we propose, under option 3, to introduce a RAM in RIIO-ED2. This is consistent with the approach used in the other RIIO-2 price controls (ie gas and electricity transmission, and gas distribution) where we will claw back any returns above a pre-defined RoRE level (currently envisaged to be set at 3% above the baseline allowed return on equity).

4.94 The RAM would apply as an adjustment to an individual company's performance. If network companies exceed the pre-defined level of RoRE, any returns above this level would be halved via the sharing factor, ensuring companies share more of the benefits of outperformance with consumers. The RAM would not apply to performance on debt and tax allowances. Any income earned from the BPI would also be excluded from the RAM.

4.95 At this stage we have not made a decision on the final design of the RAM for ED2. RAM parameters and structure used for this analysis are indicative only and reflect the parameters used in the other energy sectors.

4.96 As shown in Table 18, we rely on RIIO-ED1 information on company underspend and performance on output incentives and apply a single threshold of 300 basis points around the baseline allowed return on equity.

Table 18: Description of assumptions used in our RAM analysis

Assumptions	Title
Company underspend levels	As in RIIO-ED1
Incentive rate and outperformance on outputs	Totex incentive rate levels: same as those for TIM analysis across Low, Central and High scenarios Performance on output incentives: RIIO-ED1
Gearing	60%
RAM threshold	Indicative level set based +/- 300 bps from the baseline allowed return on equity
RAM sharing factor	50%

4.97 Our assumptions on underspend and performance are based on ED1 performance levels, making the RAM more likely to be triggered than we expect in ED2. In RIIO-ED2, we will set more challenging targets than in ED1 and we would therefore expect it to be more difficult for companies to replicate the level of outperformance and returns seen in ED1. In particular, our analysis of impacts from RAM assumes that totex underspend levels do not change as a result of lower totex inventive rates (i.e. there is no second order effect). Performance against ODIs is also assumed to be similar to RIIO-ED1 despite targets being reset and made more challenging.

Results

4.98 In our illustrative example, the impact of introducing RAM under option 3 would reduce company revenues by £0-62.7 million over RIIO-ED2 depending on the scenario. When higher totex incentive rates (closer to the levels of RIIO-ED1) are assumed, companies experience higher returns and the RAM is more likely to bind.

4.99 As shown in Table 19, 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.

Table 19: RAM impact on consumers and company revenues (£2023/24m, CPIH, discounted)

Impact	High impact case 15% TIM	Central case 32.5% TIM	Low impact case 50% TIM
Company revenues	0.0	-17.1	-62.7
Consumers	0.0	17.1	62.7

4.100 We note that our analysis does not incorporate potential impacts on company behaviour that may arise from additional uncertainty mechanisms and the BPI. As explained above, the level of underspends observed in RIIO-ED1 may not occur when tools under option 3 are applied. These are all elements reducing the likelihood of the RAM being applied in practice.

4.101 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. However, we do not anticipate that the scenarios set out in the indicative analysis above would result in a change in company behaviour given the high level of outperformance required for the RAM to be applied.

Impacts from funding of innovation

4.102 Encouraging network companies to innovate in providing network services and outputs has been a key element of the RIIO model. Several features of the price control framework are intended to encourage more innovation by network companies.

4.103 In addition to the features of the core price control framework (such as the totex and the output-based approach), Ofgem also introduced specific innovation funding mechanisms in RIIO-1. These were the Network Innovation Competition (NIC), the Network Innovation Allowance (NIA) and the Innovation Return Mechanism (IRM). Collectively, these were used to encourage companies to do more innovation than might otherwise take place within the regulatory price control context.

4.104 Under options 2 and 3, we will retain the opportunity for NIA funding and replace the existing NIC with a new funding pot (the Strategic Innovation Fund) which will focus on strategic innovation challenges. This funding may result in additional allowed revenues for network companies.

4.105 The new funding pot will focus network innovation more on strategic energy system transition challenges, increase coordination with other public sector innovation funding and increase third party involvement in network innovation.

4.106 Companies will also have the continued opportunity to receive NIA funding under options 2 and 3. These will be "use it or lose it" allowances for companies that will be primarily used for projects which support the energy system transition and consumer vulnerability related projects.

4.107 Under options 2 and 3, compared to the counterfactual, there would be a reduction in the amount of revenues companies would receive as a result of the removal of the IRM re-opener. This mechanism has not been frequently utilised during RIIO-1 (one application accepted in each IRM re-opener window), therefore the likely impact of its removal would be modest and might be offset by any increase in innovation spending using companies' totex allowances.

4.108 Based on the information currently available, we have not quantified the impacts arising from changes to innovation funding on companies' revenues at this stage. The overall size of the NIA and any initial funding for the new Strategic Innovation Fund will be determined by Ofgem at Draft Determinations.

4.109 As we are retaining innovation funding through the NIA and the new "funding pot", consumers will be paying for these regulatory mechanisms over the next regulatory period. While innovation will eventually benefit consumers, it is unlikely that this additional funding will result in significant short-term benefits to consumers within the next price control period.

4.110 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

4.111 Under options 2 and 3, we would ensure the availability of late competition models57 so long as projects meet the relevant criteria, and will identify projects for further consideration of their suitability for any early competition models.

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

4.113 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.

4.114 In the absence of Business Plans we do not attempt to estimate the potential loss of revenues/profits to network companies relative to the counterfactual. We also note that any change in revenues/profits to network companies as well as any benefits to consumers will result from the availability of projects found to be suitable for competitive models.

Impacts arising from length of price control

4.115 Under options 2 and 3, we would set the default length of the price control at five years. We consider the change in approach to be justified in light of evidence gathered from stakeholders.

4.116 Due to the nature of network assets and the fact that they have a long economic life, it can be argued that longer regulatory price controls are a better fit for the capital intensive and cyclical nature of investments in the energy networks. In an incentive regulation context, the length of the price control protects the regulated firm against early appropriation of the efficiency gains achieved during the price control period and may stimulate future efficiency and innovation.

[57] A separate draft IA considering the potential impact of late competition models in electricity distribution has been published alongside this document. The draft IA is an amended version of the late competition IA Ofgem published in May 2019 for the other RIIO sectors.

4.117 A shorter price control can allow for a narrower potential distribution of outcomes which reduces the exposure of companies and consumers to risks which can become increasingly material over a longer time horizon. This is particularly the case in the context of fast paced industry change such as that being observed in the energy sector at present.

4.118 We also acknowledge that, in theory, a shorter price control might require fewer uncertainty mechanisms. However, due to the uncertainty surrounding network activity in the future, even within the upcoming years, we expect that defining allowances necessary for a range of different activities will contain a number of challenges. As such, there might be a need to retain existing uncertainty mechanisms and potentially introduce new ones.

4.119 On balance, 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, to outweigh the potential costs related to reduced longer-term thinking.

4.120 Five-year price controls are common in the UK and internationally in a number of sectors and were used in the energy sectors prior to RIIO-1. We therefore have confidence in the merits of re-aligning with standard cross-sector practice and consider there to be benefits of such an approach in the context of rapidly changing energy networks.

Administration and resource costs

4.121 Some of the changes under options 2 and 3 could potentially impose some additional administrative and resource costs on network companies. These additional costs could be passed to consumers through higher network charges, reducing the consumer benefits from the introduction of the new mechanisms. We consider that the following changes would affect companies' administration and resource costs.

Length of price controls

4.122 Under options 2 and 3, Ofgem would reduce the length of the price control from eight to five years. The increased frequency of the price controls is likely to lead to some increased administration costs for companies as they would need to submit Business Plans, carry out necessary stakeholder engagement and respond to policy consultations more frequently. However, this increased cost is likely to be offset by the removal of the mid-period review process that would be present under the counterfactual. We therefore consider that the overall net impact on companies' administration costs would not be as significant as other elements of options 2 and 3 set out within this draft IA.

Enhanced engagement

4.123 Under option 2, Ofgem would improve enhanced engagement compared to RIIO-1 by providing guidance on what effective engagement means.

4.124 Under option 3, Ofgem would improve the enhanced engagement compared to RIIO-1 and also strengthen the voice of consumers in the price control settlement process. In particular, network companies would be required to:

- set up User Groups and Customer Engagement Groups
- to submit their Business Plan to the RIIO-2 Challenge Group, before a final submission to Ofgem
- to participate in Open Hearings.

4.125 We consider that this change in process would result in additional resource and administration costs for companies.

4.126 We consider that administration and resource costs for companies would be higher under option 3 compared to option 2. However, in comparison to the impacts of some of the other mechanisms that we have evaluated in this draft impact assessment, we would expect the administrative and resource costs of these groups to be relatively small.

Introduction of competition

4.127 The introduction of competition under options 2 and 3 might result in a transfer (and reduction) of network competition administration costs as network companies may be relieved of the responsibility of running competitions themselves. However, DNOs may incur additional costs if they decide to bid for competitive projects themselves. This would vary depending on the extent of competition in RIIO-2.

Business Plan Incentive and incentive rate

4.128 We acknowledge that the development of Business Plans can be a resource intensive task for companies. In order to provide higher quality and more ambitious Business Plans, we accept that the resources that companies need to invest may increase. We also acknowledge some resource and administrative implications resulting from the requirement to develop an understanding of mechanisms that have not previously been applied.

4.129 We summarise below the impacts on companies' revenues resulting from changes in administrative and resource costs under options 2 and 3. Overall, we consider that the

impacts resulting from other areas of this draft impact assessment are likely to have a more significant impact on company revenues.

Table 20: Impact of changes in administration costs on companies and consumers under options 2 and 3

	Option 2	Option 3
Length of price controls	Not quantified – potentially a small increase	
Enhanced engagement	Not quantified – small increase in administration costs	
Competition	Not quantified – potential transfer of administration costs	
Business Plan Incentive and incentive rate	Not applicable	Not quantified – some increase in administration costs

Distributional impacts

4.130 Network companies revenues are recovered through charges on users of the network. The way in which revenues are distributed between different users is set out in charging methodologies which apply in each sector. These network charges are passed onto consumers, in some cases via intermediaries such as energy suppliers.

4.131 The combination of charging methodologies which define the distribution of network charges and the price control which determines allowed revenues to be recovered can have distributional impacts. Different types of network users may face different proportions of costs depending on their use of the system.

4.132 In turn, this can result in distributional impacts on end consumers. However, it is not within the scope of the price control review or of this draft impact assessment to consider the way in which allowed revenues are collected. There are several Ofgem and industry projects which are currently considering the charging methodologies.58

4.133 As the energy market takes a more decentralised, decarbonised and digitalised path, we need to understand how the policy decisions we make can affect how the costs and benefits of using energy and participating in a smart energy system are distributed across different types of households.

[58] Ofgem Future Charging and Access Reforms see: https://www.ofgem.gov.uk/publications-and-updates/updatetiming-and-next-steps-future-charging-and-access-reforms

4.134 Our updated IA guidance[59] explains how we might consider the distributional impacts of our decisions and proposals on different groups of consumers. It sets out the analytical framework we have used in conducting the analysis described below.[60]

4.135 We have assessed the impact of our preferred option (option 3) on different groups of GB domestic energy consumers, particularly those who are vulnerable. We have focused our analysis on impacts under our central case scenario as this is indicates the more likely outcomes.

4.136 We have calculated an average[61] bill impact at medium typical domestic consumption62 value using annual distribution use of system (DUoS) charges in £ per customer per year, based the retail default tariff cap methodology.63

4.137 The average bill impact includes the quantified impacts from our analysis of cost of capital, switch to CPIH, totex incentive mechanism, ODIs and RAMs, as presented in Table 6 above.

4.138 Based on the calculations described above, we estimated an annual average bill saving of £2.8464 per household per year.

4.139 This estimate has allowed us to calculate bill impacts for:

- each of the statutory groups[65] 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[66]

4.140 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

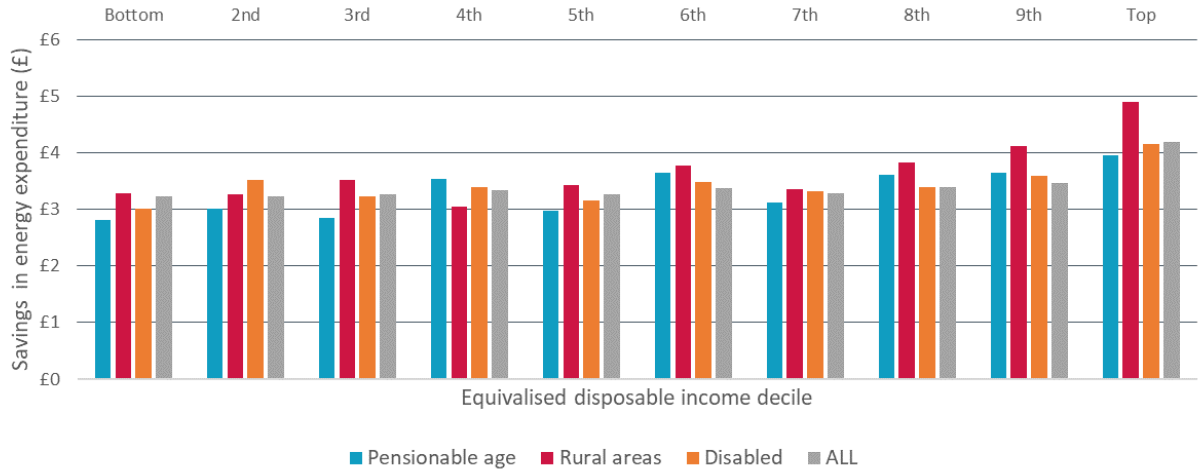
[59] Ofgem, Impact Assessment Guidance.
[60] Please see Ofgem Assessing the distributional impacts of economic regulation.
[61] We have estimate a simple average across all regions.
[62] These are 3,100 kWh for a single register meter.
[63] Please see Annex 3 Network Cost Allowance methodology.
[64] The bill impact estimation disregards the slow money component of totex, which is added to the Regulatory Asset Base.
[65] These are: low income; disability / chronic illness; pensionable age; and rural areas.
[66] As listed in Appendix 1 of our Consumer Vulnerability Strategy. Data is not available for all characteristics of vulnerability listed.

- 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.[67]

4.141 We note that under option 3 consumers would save money compared to the counterfactual, but the total absolute level of savings would depend on the level of consumption.

4.142 As shown in Figure 6, absolute annual bill savings can range from approximately £3 to £5 p.a. depending on customer category (pensionable age, rural areas, disabled) and income decile.

Figure 6: Distributional effects - annual impact energy bills, by categorical group and equivalised income decile



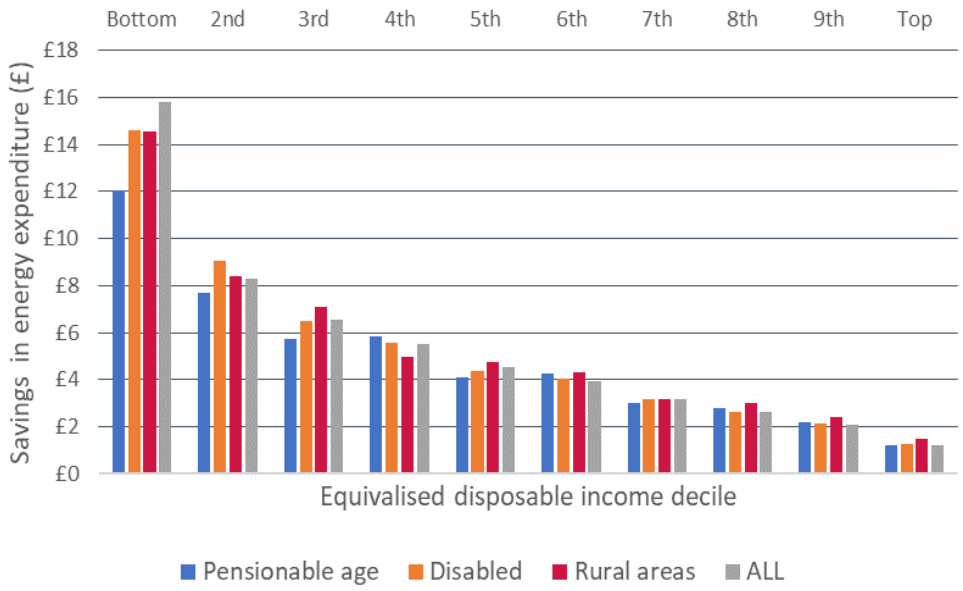
Source: Ofgem analysis

4.143 However, absolute annual savings do not fully capture the distributional effects of the impacts we envisage for option 3. Consumers with lower incomes place a higher value on a £1 saving in energy bills (i.e. 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 benefits for higher income households. As shown in Figure 7, equity adjusted bill savings are much less uniform across income deciles: lower income customer can benefit the equivalent of as

[67] 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".

much as £16 p.a. compared to a £1 equity adjusted average saving for top deciles customers.

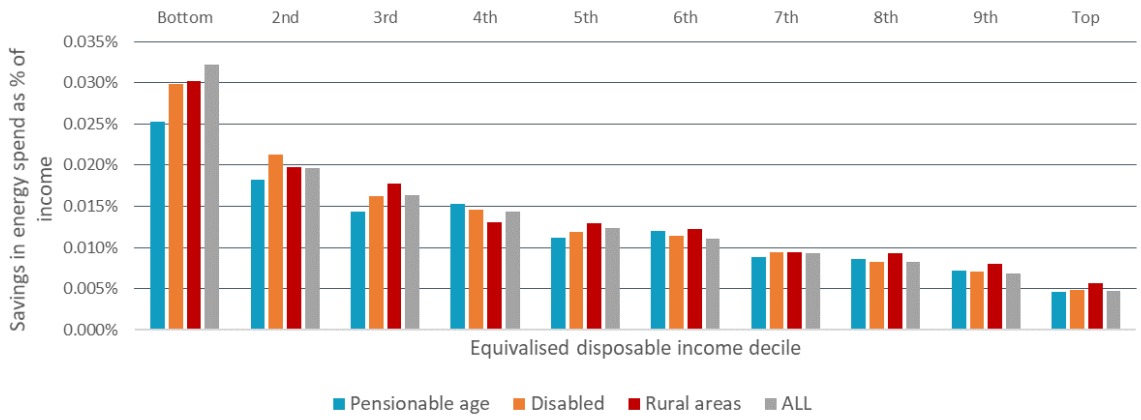
Figure 7: Distributional effects - annual impact energy bills impact of the fixed reform on energy bills, by categorical group and equivalised income decile (equity adjusted)



Source: Ofgem analysis

4.144 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 8, savings range from approximately 0.05% to 0.030% of equivalised disposable income with individuals at median income deciles saving up to 0.06% of their income.

Figure 8: Distributional effects - Impact on bills as a percentage of income



Source: Ofgem analysis

Impact on the environment

4.145 In June 2019, the UK Parliament made a commitment to achieve net zero greenhouse gas emissions by 2050. In September 2019 the Scottish Parliament legislated to set a net zero target for 2045, and the Welsh government intends to introduce legislation to amend its existing target to achieve net zero no later than 2050.

4.146 In our Strategic Narrative for 2019 to 2023, published in July 2019, we made clear that decarbonising the energy system at lowest cost to consumers is one of our three priorities over the coming years, alongside protecting consumers and enabling competition and innovation.

4.147 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. DNOs' responsibilities in this area are not limited to the facilitation of others' activities and therefore, as in the transmission and gas distribution sectors, we proposed that DNOs should focus on decarbonising their own network, reducing the environmental impact of network activity, and supporting the transition to a smarter, more flexible, sustainable low carbon energy system.

4.148 Under the RIIO-1 framework, DNOs have been subject to reputational incentives related to their impact on the environment. This came in the form of a requirement on DNOs to publish annual reports outlining progress in the reduction of their business carbon footprint (BCF), the management of leakages of sulphur hexafluoride (SF6) and of oil from fluid filled cables. While we have seen improvements in these areas during RIIO-1, for RIIO-2 we are seeking to introduce a more consistent environmental framework in line with that applied in the RIIO-2 price controls for the gas distribution and transmission network operators.

4.149 We therefore consider that under the counterfactual and both options 2 and 3, we would require each company to set out an Environmental Action Plan (EAP) in its Business Plan. The EAP should outline the measures companies are proposing to implement to decarbonise the network and to reduce the wider environmental impact of network activity with a longer-term view to support Net Zero targets by 2050. The EAP should include the activities, commitments and, where appropriate, specify performance indicators and targets. An Annual Environment Report (AER) will outline progress against EAP commitments. We are also considering mechanisms to encourage strategic investments that will support the uptake of LCTs necessary to achieve the net zero targets.

4.150 Under option 3, the companies' EAPs will be assessed as part of the minimum requirements checks for the BPI. This should incentivise all companies to submit EAPs that meet at least the minimum standards we would expect for these plans. However, we would also expect companies to propose EAPs that go beyond meeting minimum standards in order to earn additional rewards under the BPI. We expect that requests for funding associated with activities set out in EAPs will be provided as part of baseline allowances backed by stakeholder engagement and cost benefit analyses.

4.151 Under both option 2 and 3, we would use the full range of tools included within the options, including LOs, PCDs and ODIs to drive significant improvements. For example, we would consider specifying PCDs for specific schemes that DNOs propose in their EAPs. We also note the potential for companies to propose bespoke incentives focused on the low carbon transition where they can demonstrate that these are in consumers' interests.

4.152 Overall, we consider that there might not be a significant difference between the impacts arising from option 2 and 3 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. We will review this assessment at draft Determinations.

5. Impacts beyond the next regulatory period

This chapter presents our analysis of the impacts of our options on electricity distribution network companies and consumers, which go beyond the next regulatory period.

Impacts on companies and consumers

5.1 Impacts on future consumers have been a major consideration in designing the regulatory framework for the next regulatory period. So far, particularly when quantifying impacts of options 2 and 3 against the RIIO-1 counterfactual, we have focused on impacts during the next price control period.

5.2 However, we also have to take a longer-term view in the appraisal of these options. In general, impacts beyond the next regulatory period will occur where companies may be influenced to make decisions now which have longer-term impacts. For example, companies may respond to elements of option 2 and option 3 which relate to decarbonisation, asset resilience, future investment and innovation or the environment. In these areas in particular, the actions taken in the next regulatory period may have effects which go beyond it.

5.3 Long-term considerations are often complex, uncertain, hard to monetise and/or extremely sensitive to the assumptions underpinning monetisation. This chapter does not attempt to produce a detailed assessment of long-term impacts but presents evidence that allows us to consider the potential impacts which options 2 and 3 could have on consumers after the end of the price control period. We do not consider the differences between options 2 and 3 to be significant in relation to longer-term impacts so our assessment for both options is broadly similar.

5.4 Our assessment distinguishes two categories of impacts:

- **Medium-term strategic impacts**: In our assessment of medium-term strategic impacts we have considered resilience and impacts that would occur after the five years of the price control period.
- **Long-term sustainability impacts**: These focus on large, non-marginal or irreversible impacts such as environmental impacts and large capital investments.

5.5 As part of our medium-term strategic assessments, we have considered the following impacts:

- moving from RPI to CPIH for RAV indexation
- introducing network competition models
- network resilience
- changes to incentive rates.

5.6 As part of our assessment of sustainability impacts we have considered the impact of options 2 and 3 on the environment, investments and innovation. The assessment of these impacts is necessarily high level, particularly given that we do not have detailed Business Plans at the current time.

Medium-term impacts

Indexation of RAV and allowed return to CPIH

5.7 The impact of the switch from RPI to CPIH is value neutral in the long run. The higher cost of capital awarded under CPIH leads to higher bills in the early years but is offset in the long run by the slower growth of the RAV. The long run effects therefore have NPV equal to 0. We do not attempt to re-estimate medium term impacts here and refer the reader to the analysis presented in the SSMD IA.[68]

TIM and output incentive rates

5.8 When considering the impact on companies of lowering incentive rates under option 3, we discussed the potential for companies to respond by decreasing the level of effort they invest in identifying and delivering cost efficiencies. Successive iterations of price control setting can help to allay the information asymmetry problem to some degree as we gather additional information on the sectoral efficiency frontier. Historical cost data can complement our cost assessment benchmarking where it is possible and can be an important piece of evidence for bottom-up assessment where benchmarking is not possible.

5.9 Therefore, where lower incentive rates discourage companies from moving towards the efficiency frontier, this could have longer term impacts on our ability to perform cost assessments and ensure that companies continue to be effectively incentivised to get as

[68] Please see pages 96-97 for a discussion of the medium-term impact of the switch to CPIH. https://www.ofgem.gov.uk/system/files/docs/2019/08/ssmd_ia_updated_version_31_july_2019.pdf, page 96.

close to that frontier as possible. This could negatively impact on consumers beyond the upcoming regulatory period.

5.10 While we acknowledge that under option 3 reducing the incentive rate might reduce companies' effort and in turn reduce productive efficiency, we consider that any negative effect is likely to be relatively small.

The introduction of late and early competition

5.11 Under options 2 and 3, we are looking to expand the use of competition where it is in the interests of consumers. Our focus has been on ensuring the availability of late competition and the introduction of early competition.

5.12 As discussed in Chapter 4, there are a number of potential benefits associated with the introduction of competition for the market under option s2 and 3. Our assessment indicates that early and late competition models have the potential to reduce the information asymmetry problem that we face in regulating these companies. This, in turn, can increase efficient network procurement and drive down allowed revenues.

Network Resilience

5.13 Due to the long operating life of network assets, the impact of any shortfall in asset management activities may not be directly observable within the horizon of the price control. Under options 2 and 3, we would expect our Network Asset Risk Metric (NARM) methodology to protect consumers against the risk of companies underinvesting in long-team network resilience.

5.14 In addition, we note that our emphasis on the use of PCDs to ensure that companies deliver what they say they will should mitigate the potential for companies to under-invest in network resilience in order to maximise short-term returns within the price control period at the expense of long-term asset resilience.

Longer-term impacts

Environmental sustainability

5.15 As discussed in Chapter 4, we consider that Ofgem would have introduced similar mechanisms to those proposed in the SSMC69 under the counterfactual and option 2 and 3.

[69] Please see, para 9.60 and table 40 for a description of the proposals made in the Sector Methodology consultation.

This results from the fact, as noted above, that Net Zero legislation would have occurred under any regulatory option Ofgem might have chosen.

5.16 Further we note the DNOs have enabling effect in facilitating for example, greenhouse gas reductions in other parts of the value chain but their direct impact on greenhouse gases is more limited.

5.17 For the reasons explained above, we believe there would not be any material long-term impact associated with options 2 and 3 compared to the counterfactual.

5.18 We will update this assessment at draft determinations also in light of any decision we will making regarding strategic investment.

Future investment

5.19 There are elements of our proposals for RIIO-ED2 that can push future investment in either direction. In some cases, efficiency incentives will lead to deferral of investment, but in other cases they may provide incentives to bring forward investment where it is expected to be efficient to do so.

5.20 Where cost efficiencies result from deferral of investment, there may be a beneficial impact on existing consumers but at a cost to future consumers who will have to bear the cost of this deferred investment in the future. The overall effect may be positive or negative depending on the discounted value of the action when the impacts on both sets of consumers are taken into account. Where the increased (discounted) costs to future consumers outweigh savings for existing consumers, net of consumer benefit, the activity may have a net negative impact on consumers.

5.21 We have taken this into account within our methodologies for PCDs under both options 2 and 3. By tying totex allowances more closely to PCDs, we will mitigate the risk of future consumers paying for lower levels of delivery than expected over the RIIO-2 period.

5.22 Where cost efficiencies result from innovation or efficiencies which mean that savings can be made now without costs arising in the future, existing consumers will share a proportion of the benefits. Future consumers will also see some of the benefits of current cost efficiencies because lower spending will result in a lower RAV. In many cases future consumers may also benefit from improved outputs and cost efficiencies which may be reflected in consumer benefits beyond the next price controls.

5.23 Our consideration of strategic investment has identified potential benefits from bringing forward investments needed to facilitate LCT uptake and the achievement of the Net Zero Targets.70 For example, there may be situations in which it is cost-effective to over-size an asset in RIIO-ED2 in anticipation of load growth out to 2050. Such opportunities can arise when carrying out all of the work in one go is more efficient than a phased approach that could involve the inefficient repetition of tasks (e.g. excavating underground cables on multiple occasions). These schemes have the potential to increase costs for existing consumers in order to produce savings for future consumers which contribute to the achievement of the Net Zero targets at the lowest possible cost. We are seeking to design a strategic investment mechanism that would allow for cost effective opportunities to be identified and funded through the price control.

Impacts from innovation

5.24 As discussed in Chapter 5, any additional innovation funding provided to network companies has the potential to result in significant benefits to future consumers while the impacts on consumers in the next regulatory period may be relatively small. This implies that consumers in the next regulatory period are financing benefits that are likely to be realised beyond it.

5.25 As network companies implement proven innovation into business as usual over time, this will help to improve efficiency and reduce consumer bills over time.

Summary of impacts beyond the next regulatory period

5.26 A large proportion of the impacts that we identify in this draft impact assessment will take place within the next regulatory period.

5.27 However, there are some potential impacts beyond the next regulatory period which result from policy and company responses undertaken in the next regulatory period. In some areas, revenues allowed to companies and funded by existing consumers may benefit consumers in the future. In other areas, regulatory mechanisms and company responses may benefit consumers in the next regulatory period while future consumers may face some additional costs.

5.28 We expect both existing and future consumers to benefit from our decisions. It is likely future consumers will face proportionately greater gains because of the switch to

[70] https://www.ofgem.gov.uk/system/files/docs/2020/07/ed2_ssmc_overview.pdf, paragraph 4.41.

CPIH indexation, and potentially as a result of the focus on environmental impacts and innovation.

6. Risks and uncertainties

This chapter presents our considerations of the main risks and uncertainties associated with options 2 and 3.

6.1 The implementation of any of the options discussed in this draft impact assessment inevitably presents some risks and potential for unintended consequences, especially in areas where we are introducing new mechanisms.

6.2 We discuss below risks faced by Ofgem in implementing the options considered, the uncertainties associated with the quantified impacts presented in Chapter 4, the potential for some unintended consequences, and the risk allocation between consumers and companies under the options considered.

Implementation risk

6.3 In any price control, the regulator faces several risks when it resets company cost allowances. While Ofgem sets the price control using the best information available, there is a risk that key parameters, including allowances, could be set inaccurately.

6.4 Under option 3, Ofgem has considered the introduction 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.

6.5 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, in legal challenge, or material error that might affect the performance of network companies relative to ex ante expectations and affect the delivery of benefits to consumers.

Uncertainties and potential for unintended consequences

6.6 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 proposed within the options. Where these assumptions do not

hold, some of these consumer benefits might not materialise or could be larger than expected.

6.7 To reflect the uncertainties relating to the network companies' responses we have undertaken scenario analysis. In Chapter 4, we present our estimates of the monetised direct impacts under our preferred option as a range reflecting the limits generated by these scenarios.

6.8 We identify below specific areas of uncertainty in our methodologies and describe the analysis we have undertaken:

- Changes to level of incentive rates (option 3 only): Our analysis demonstrated that the extent of consumer benefit will depend on the behavioural response of companies to lower incentive rates. We observed that at low incentive rates, a mapping factor close to 1:1 could result in negative consumer benefits. However, we noted that the third order effect should mitigate this risk to some degree. Nonetheless, should companies respond to lower incentive rates with a significant reduction in effort to identify cost efficiencies, option 3 may have the unintended consequence of reducing cost savings that are passed on to consumers.
- Approach used to set incentive rates/informational tools: Under both options 2 and 3, we include tools that we have designed to reduce information rents. This should increase consumer benefits across all incentive rates. However, these improvements are untested. In the case of option 2, we have observed challenges with the application of the IQI which may endure. We note that the same challenge would apply to retaining the IQI under the counterfactual. For option 3, 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 (in terms of lowering information rents and encouraging companies to submit more ambitious and better justified Business Plans) could be lower.

6.9 In practice, there could potentially also be some unintended consequences arising from the implementation of our methodologies. We identify the following:

- **Changes to output incentives**: While considering the monetary transfer from companies to consumers resulting from a reduction in the expected rewards associated with ODIs, we noted that this may also reduce output levels in areas

that consumers may value. On balance, we consider that the former outweighs the latter and that the opportunity for bespoke incentives will help to rebalance this. However, an unintended consequence of the options could be reduced consumer benefit from delivery of outputs to a greater degree than the resulting monetary benefits for consumers.

- **Bespoke incentives**: While bespoke incentives should allow more targeted delivery of outputs, where companies can demonstrate these are in the interests of their consumers, they come with implementation challenges. We may need to determine bespoke and differentiated targets and calibrate incentives for different companies without comparative information on the performance of other companies from which to draw on. Further, there is a risk that bespoke incentives might not necessarily be reflective of consumers' best interests and if they are calibrated too generously it might mean that companies benefit while consumers lose out. In order to mitigate this risk, we will retain a high burden of proof on companies to justify bespoke incentives and calibration and draw from the experience of applying bespoke incentives for RIIO-2 in the other energy sectors.
- **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. For example, the confidence-dependent incentive rate approach could strengthen this risk by encouraging companies to focus on 'high-confidence' costs to benefit from a higher incentive rate. However, we consider that sufficient funding is in place through RIIO-2 innovation stimuli to invest in technologies that can drive cost efficiencies and deliver for both existing and future consumers. Based on our assessment of RIIO-1, we consider that the benefits to consumers of receiving a higher share of underspends and paying less for financial outperformance outweigh the associated risks.
- **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, this may also reduce the scope and incentive for companies to identify and deliver alternative approaches that may result in genuine cost reductions during the price control period.
- **Finance parameters**: We have used some working assumptions for the cost of capital under options 2 and 3, based on the prevailing economic environment and our identification of the level of risk present for companies. However, should the cost of capital be set at a level which is too low, and other mitigating factors were not in place, we note that this could have the unintended effect of introducing financeability challenges for companies. This may undermine their

ability to invest in their networks at an important time of transition. Conversely, should it be set too high then consumers would pay higher charges for these network services than is appropriate. To mitigate the impact of forecast error, allowances for debt and equity will be updated during each year of RIIO-2 to reflect changing market rates.

- **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, this will impact company behaviour. For example, a company that expects to reach the upper RAM threshold may reduce effort given the lower marginal benefits from additional outperformance. This may reduce the extent of consumer benefit resulting from genuine cost efficiencies. However, by design, the RAMs would only be applied when there is significant under/over performance. Therefore, we would not expect any material impact on company revenues and behaviours.
- **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

6.10 In deciding on the framework for the next regulatory period, we need to take account of the impact of our methodologies on the risk allocation between network companies and consumers. We also need to consider whether the level of baseline revenues envisaged is in line with the risks to which companies are exposed.

6.11 Two key principles should inform how the regulatory framework should treat risk:

- risks should be allocated to the parties best placed to manage them in order to maximise the efficiency of risk allocation.
- the price control package should be calibrated so that baseline revenues are consistent with the level of risk that network companies are exposed to.

6.12 The risk/reward balance can impact on expected company revenues and ultimately on consumers. High risk/reward profiles can provide companies with the potential for high returns, commensurate with the risk of under-delivery that could result in losses. Low

risk/reward profiles protect companies from risk but allow them only a low level of potential returns.

6.13 Regulated networks are relatively low risk businesses. They are natural monopolies and subject to price control regulation that provides a high degree of certainty on their future revenues.

6.14 Within regulatory models that rely on setting an allowed revenue that companies can recover from their consumers, companies are protected from demand risk. They face a degree of delivery risk related to actual spending versus allowances and performance against targets set by the regulator.

6.15 The design of RIIO-1 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 revenues.

6.16 Observations of company performance within RIIO-1 suggest that the RIIO-1 framework has provided network companies with more upside potential than downside risk.

Risk and uncertainty tools under options 2 and 3

6.17 For the next regulatory period, we are learning from the risk/reward allocation in RIIO-1 to rebalance what we consider to be a bias towards company reward.

6.18 A number of elements under options 2 and 3 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.

6.19 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[71] (and to some extent shorter price controls which result in allowances being reset more frequently).

[71] The risk-free rate of return is the interest rate an investor can expect to earn on an investment

- Measures that reduce the network companies' exposure to risks related to their performance (e.g. totex incentive rates).
- Measures that reduce the overall variability of revenues (e.g. RAMs).
- Measures that allow Ofgem to claw back revenues where companies do not deliver the required outputs (e.g. PCDs and minimum standards of performance)

6.20 We assess how each of the main elements of options 2 and 3 impact the risk allocation between consumers and network companies and how this risk allocation changes compared to RIIO-1 below.

6.21 Under option 2, we would make better use of tools to manage uncertainty (e.g. RPE indexation, shorter price controls) and would also recalibrate some output delivery incentives and introduce PCDs to tie allowances more closely to delivery of outputs. Therefore the overall framework of rewards and penalties would be more balanced than in RIIO-1.

6.22 Under option 3, in addition to indexation of RPEs, recalibration of output delivery incentives and PCDs, we have proposed tools that reduce the overall variability of revenues and the risks related to company performance (e.g. lower totex incentive rates, RAMs). We therefore consider that we have introduced a more balanced risk/reward profile under this option than has been observed in RIIO-1. Companies will face lower risks than under option 1 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.

6.23 The strategic investment models, which could apply under either option 2 or option 3, are mechanisms to ensure that the regulatory framework does not impede the uptake of LCTs needed to meet the Net Zero targets. However, they also potentially create some new risks of their own, in the form of possible stranded assets, windfall profits or losses, and regulatory burden for companies and Ofgem. We will seek to strike an appropriate balance between these complementary risks as we work to identify our preferred approach to strategic investment.

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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.

7. Summary, conclusions and next steps

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

7.2 In December 2019, we made a decision to apply the existing RIIO framework, with targeted changes, to the next price control. In making this decision, we have considered a number of factors, including evidence of the performance of network companies during RIIO-ED1 and, more broadly, the economic, technological and policy environment. We also signalled our intention to publish a draft Impact Assessment alongside the Methodology Consultation and that this will consider the impact of the decisions we took in the Framework Decision as well as proposals regarding key strategic areas and specific outputs and incentives.

7.3 The key focus of the draft impact assessment is to answer the question of whether the changes in methodologies/tools and parameters under the options considered for the electricity distribution sector for the next regulatory period, provide good value for consumers.

7.4 The learning from RIIO-1 to date is that the existing regulatory framework has not led to an appropriate risk/reward balance, which has resulted in higher returns for companies. In particular, this may be due to problems arising from asymmetry of information, where there can be challenges for the regulator in directly observing a company's efficient costs, or the level of effort employed by the company in reaching targets set by the regulator.

7.5 These informational problems are compounded by technological change and the evolving nature of the electricity sector. These factors increase the uncertainty around setting ex ante revenues and cost allowances for a multi-year regulatory period. Furthermore, technological advancements and changes in the scale and nature of investment required in electricity distribution networks mean that companies' past cost performances might not be a good indicator of future efficient costs.

7.6 Within this evolving context, Ofgem needs to ensure that regulated network companies deliver the value for money services that both existing and future consumers need whilst having regard to the need to ensure that network companies are able to finance their activities.

7.7 In this draft impact assessment, we have considered both qualitatively and - to the extent possible - quantitatively the impact that different options may have.

7.8 We have considered four options. We ruled out option 4 based on consideration that a fundamental change is not currently in the best interests of existing and future consumers, particularly given the scale and pace of the energy system transition. Most of our analysis has therefore focused on comparing options 2 and 3 against the RIIO-1 counterfactual.

7.9 We present in the table below estimated consumer benefit based on a partial quantification of options 2 and 3, compared to the counterfactual. In the table, we also present a qualitative assessment of other elements of our options. We note that our quantification should be taken as indicative and that most of the impacts presented in the table are a direct transfer from companies to consumers. Under both options 2 and 3, the largest impact on consumers would arise from changes to the allowed return on capital.

7.10 Based on the analysis presented in this draft impact assessment and in previous documents, we propose to use the package of proposals under option 3 for regulating electricity distribution network companies in the next regulatory period. We believe this represents the most effective option for the next regulatory period as it offers:

- Lower allowed return on capital aligned with updated evidence
- Incentive strength tailored to the environment of considerable information asymmetry and uncertainty facing the sector
- A Business Plan Incentive, which is less anchored to strong assumptions of how companies behave and respond to incentives and Ofgem forecasts being independent of Business Plans - we consider option 3 to be better than option 2
- A return adjustment mechanism which protects consumers against material deviations from ex ante expectations, forecast and benchmarking errors (better than option 2)
- Higher quantified consumer benefit compared to option 2.

7.11 In addition, we are also considering four different regulatory models to incentivise strategic investment, which we believe can be considered alongside the other elements of our preferred regulatory framework.

Table 21: Impact on consumers of options 2 and 3 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 2	Option 3	Option 3 Range	
				Low impact	High impact
Changes to financial parameters	Return on capital	**1,778**			
		Network companies will receive lower returns on invested capital.			
	Switch to CPIH	**-1,115**			
		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	**0**	**61**	21	64
		No change from counterfactual	A combination of lower incentive rates and the introduction of our new information tools may increase the proportion of cost efficiencies relative to information rents, benefitting consumers further.		
	Output Delivery Incentives	**12**	**99**	19	154
		Consumer benefits may reduce where companies reduce delivery of outputs as a result of removal of incentives.	Consumer benefits may reduce where companies reduce delivery of outputs as a result of removal and re-calibration of incentives, but consumers will benefit from more ambitious targets and minimum standards of performance.		
	Price control deliverables	Consumers will benefit from tying network company expenditure (totex allowances) more closely to delivery. However, consumer benefits may reduce because network companies will have less flexibility to deliver cost efficiencies.			
Changes to other elements	Return adjustment mechanisms	**0**	**17**	63	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 greatly 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. We expect the extent of innovation funding to be broadly in line with that observed in RIIO-1.			
	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 3 given introduction of additional tools.			
Total quantified impacts		**674**	**839**	**765**	**880**
Total, not including switch to CPIH		**1,790**	**1,955**	**1,881**	**1,996**

7.12 We acknowledge that option 3, compared to the RIIO-1 counterfactual and option 2, presents some risks and uncertainty around how network companies may respond in practice to some of the tools we are introducing (e.g. risk of companies reducing efficiency cost savings; less innovation) and how this will affect both consumers and DNOs.

7.13 These risks are at least partly mitigated through:

- enhanced stakeholder engagement to place more scrutiny over companies' cost projections and proposed outputs
- PCDs to ensure that companies deliver the outputs that consumers are paying for
- the RAM which would protect consumers and investors against returns deviating significantly from the expected levels due to information asymmetries, forecast and benchmarking errors.

Next steps

7.14 We will update this draft impact assessment at Sector Specific Methodology Decision stage.

Appendices

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Appendix 1: Incentive rate and totex underspend in RIIO-1

In this draft impact assessment we have considered the relationship between the totex incentive rate and totex underspend/overspend (defined as the difference between totex allowances and actual totex costs incurred by companies). We do this in order to understand the impact that a reduction in the incentive rate would have on network companies and consumers as part of our assessment of option 3. Economic theory would suggest a positive relationship between these two variables – i.e. a higher totex incentive rate would encourage companies to put more effort into achieving cost efficiencies and underspending their totex allowances.

Here, we explore what we can learn about the strength of this relationship by considering totex under/over spend within the RIIO-1 regulatory period. To maximise sample size and since we are exploring a structural relationship between regulation (the incentive rate) and company outcomes (the underspend), we use information across all the RIIO-1 price controls and not only electricity distribution.

Figure 9 shows that, even at a high level, it is not possible to identify a clear relationship between these two variables from historic data and forecasts. This could be due to the difficulty of isolating any effects arising from the totex incentive rate from other potential factors affecting totex underspend/overspend. These factors may include (i) the level of allowed totex and Ofgem's ability to set accurate allowances; (ii) the scope for efficiency improvements faced by individual companies or sectors; (iii) the regulatory framework in place at the time of the RIIO-1 price control including, for example the application of the IQI (companies with more ambitious business plans were rewarded with a higher sharing factor) and (iv) the strategy employed by companies in response to that framework.

We have not undertaken more sophisticated analysis to explore this relationship and in this draft impact assessment we have made a number of simplifying assumptions to illustrate how different 'mapping factors' would affect consumers and network companies under option 3. We explain our mapping assumptions in Chapter 4.

Figure 9: RIIO-1 (actual + forecast) totex performance and totex incentive rates in transmission and distribution sectors