RIIO-2 Final Determinations – Impact Assessment Annex

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This Annex sets out our assessment of the impacts of our Final Determinations decisions on consumers and network companies under the RIIO-2 price controls that are due to commence on 1 April 2021.

In line with the approach taken at previous stages of the RIIO-2 programme, most of the assessment relates to the gas distribution, gas transmission and electricity transmission sectors. Where relevant and consistent with the other sectors, we also consider the impacts for the Electricity System Operator (ESO).

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Summary of impacts on consumers and network companies

This Annex sets out our final view of the impact of our Final Determinations. The methodology applied for calculating these impacts is consistent with that used in the Draft (Sector Specific Methodology Decision) and Draft Determination Impact Assessments, with the analysis updated to reflect the decisions being taken at Final Determinations. Further detail on the underlying analysis and evidence for our decisions can be found in the relevant sections throughout this document, the wider suite of our Final Determinations publications and in our previous Impact Assessments.[1]

Over the five-year RIIO-2 period, we expect our Final Determinations for the gas distribution, gas transmission and electricity transmission sectors to deliver net benefits to consumers of up to £2.9 billion, relative to the counterfactual.[2] The £2.9 billion consumer benefits value is lower compared to that assessed at Draft Determinations given changes to the cost of capital, totex allowances, incentive rates, and ongoing and benchmarking efficiencies.[3]

There are different ways consumer benefits can be calculated. In this Impact Assessment the values are expressed in Net Present Value (NPV) terms relative to the defined counterfactual. In other Final Determination publications, a £2.3 billion value is referenced. This estimate is derived from the net change in overall revenues in Final Determinations relative to RIIO-1 outturn positions.

Based on Final Determinations decisions we have calculated that domestic consumers will see savings in their energy bills of £10 (2018/19 prices) a year/per household. This value is based on medium typical domestic consumption values, compared to the average bill in RIIO-1. Further detail on the calculation is provided in Section 5.

Table 1 below provides a summary of the expected impacts of our Final Determinations on consumers and network companies over the next regulatory price control period (2021/22 to 2025/26), compared against the counterfactual.

We also present our assessment of net benefits to consumers and companies, including and excluding the switch from Retail Price Index (RPI) to Consumer Price Inflation

[1] Please see RIIO-2 Draft Determinations Impact Assessment and RIIO-2 Draft Impact Assessment.
[2] Please see RIIO-2 Draft Impact Assessment, Chapter 2 for a definition of our counterfactual.
[3] These changes are explained in Section 4 of this document.

including Owner Occupiers' Housing Costs (CPIH), and depreciation of gas transmission assets. We note that the switch from the (RPI) indexation of the regulated asset value and allowed returns will be value-neutral to both investors and consumers in the long-run (consumers will be neither worse off nor better off). However, it does affect the timing of repayment of the Regulatory Asset Value (RAV),[4] which reduces consumer benefits over the RIIO-2 period. Similarly, the change in the depreciation of gas transmission assets is value-neutral in the long-run, but it will result in reduced benefits to consumers within the RIIO-2 period.

We note that the impact on companies' revenues is higher compared to the impact on consumers. This is due to the asymmetric impact from changes to the totex incentive mechanism, which reduces companies' revenues more than the expected benefit to consumers[5].

Table 1: Monetized impacts of RIIO-2 Final Determinations for gas distribution, gas transmission and electricity transmission sectors over the over the five years of the RIIO-2 period, compared against counterfactual (£m 2018/19)

Summary of quantified Impacts	
Business Impact Target Qualifying Provision	Non-Qualifying
Business Impact Target	Not Applicable
Net Benefit to GB Consumers Direct consumer Net Present Value (NPV) figures represent the direct impact on energy consumers compared to counterfactual over the next price control period	**Direct benefits including switch to CPIH and deprecation: £901m (£872m to £931m)** **Direct benefits including switch to CPIH and deprecation: £2,872m (£2,843m to £2,901m)**
Impact on network companies' revenues	**Revenue impact not including switch to CPIH and deprecation: -£1,079m (-£991m to -£1,168m)** **Revenue impact including switch to CPIH and deprecation: -£3,050m (-£2,961m to -£3,138m)**

[4] The value ascribed by Ofgem to the capital employed in the licensee's regulated business (the 'regulated asset base'). The RAV is calculated by summing an estimate of the initial market value of each licensee's regulated asset base at privatisation and all subsequent allowed additions to it at historical cost, and deducting annual depreciation amounts calculated in accordance with established regulatory methods. These vary between licensees. A deduction is also made in certain cases to reflect the value realised from the disposal of assets comprised in the regulatory asset base. The RAV is indexed to allow for the effects of inflation on the licensee's capital stock

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

Notes: NPV values are calculated over the next regulatory period (five years), from 2021/22 to 2025/26, using a discount rate of 3.5% (as per HM Treasury Green Book guidance). Costs and benefits are in 2018/2019 financial year prices. Some costs and benefits are hard to monetise and others will arise beyond the next regulatory period. These are considered qualitatively.

Key components of monetized and non-monetized impacts

Table 2 provides a high-level breakdown of the expected impacts of our Final Determinations by area of the RIIO-2 package.

Most of the figures presented in the table refer to the gas and electricity transmission, and gas distribution sectors. However, for the baseline allowed return on equity and the switch to CPIH the financial impacts for the Electricity System Operator (ESO) are included in the totals. The ESO however only accounts for a small proportion of total NPV presented.

The dominant quantified effect arises from a resetting of the cost of equity to market rates, which drives a large transfer from investors to consumers, compared to the counterfactual.[6]

The changes in the totex incentive rates in the RIIO-2 controls are also expected to result in net benefits to consumers. To assess how network companies may respond to changes to the totex incentive rates we continue to model three different cases: low, central and high.

Our assessment of quantified impacts also includes changes to methodologies used for estimating allowed totex expenditure, including ongoing and benchmarking efficiency. We would expect these changes to result in a net benefit to consumers.

The impacts set out below represent a partial quantified assessment of our Final Determinations. Several of the impacts we analyse are difficult to quantify, due to the lack of data or the nature of the mechanisms considered. Specifically, we have not quantified impacts arising from changes to competition, innovation and output delivery incentives. However, we have quantified the changes that we expect to have the largest, material impact on consumers.

Overall, we consider that the new mechanisms introduced for RIIO-2 will help support a better balance of risk and return between consumers and companies. These mechanisms

[6] The transfer is reflected in a reduction in the allowed return on equity compared to the RIIO-1 counterfactual, which in part reflects a fall in financing costs.

include Price Control Deliverables (PCDs), confidence dependant sharing factors,[7] Return Adjustment Mechanisms (RAMs), and greater use of indexation rather than forecasting.

Some of these mechanisms correct for factors that contributed to the levels of outperformance seen under the RIIO-1 price controls. The introduction of RAMs provides a new automatic correction mechanism that is expected to protect both consumers and investors against ex post overall returns deviating significantly from ex ante expectations. While the impact of these mechanisms cannot be quantified, they are collectively expected to deliver greater levels of protection for consumers and investors through a reduction in risk.

[7] https://www.ofgem.gov.uk/system/files/docs/2019/01/riio-2_sector_methodology_0.pdf p 173.

Table 2: Impacts on consumers of Final Determinations compared to counterfactual over the five-year price control - quantified and non-quantified impacts (£m 2018/19, discounted)[8]

Area of package	Mechanism	Low	Medium	High
Changes to financial parameters	Return on equity	2,606	2,606	2,606
		Network companies will receive less remuneration for equity investment. Key credit ratios are expected to be broadly similar or slightly improved on a notional company basis.		
	Switch to CPIH	-1,508	-1,508	-1,508
		The switch will be value neutral to both investors and consumers in the long-term (consumers will be no better or worse off) but it does affect the timing of the repayment of the RAV. This means the impact on consumers is negative within the next regulatory period but will turn positive in later periods.		
	Depreciation of gas transmission assets	-462	-462	-462
		The change will be value neutral to both investors and consumers in the long-term (consumers will be no better or worse off) but it does affect the timing of the repayment of the RAV. This means the impact on consumers is negative within the next regulatory period but will turn positive in later periods.		
Changes to incentives	Totex Incentive Mechanism and Informational Tools	58	87	117
		The impact from changes to informational tools is uncertain. Some level of information asymmetry expected to persist over time.		
	Output Delivery Incentives	Consumers expected to benefit from improved service quality driven by more stretching ODI targets and additional outputs.		
	Price Control Deliverables	Consumers expected to benefit from only funding activities that are delivered.		
	Ongoing efficiency	158	158	158
	Benchmarking efficiency	21	21	21
Changes to other elements	Return Adjustment Mechanisms	0	0	0
		Assumed that RAMs unlikely to be triggered under any scenario.		
	Innovation Funding	No material change assumed between counterfactual and RIIO-2 approach. Starting value for innovation funding consistent with that made available under RIIO-1.		
	Competition	Increase use of competition likely to deliver consumer benefits if projects are approved during RIIO-2 period.		
Administration costs		Potential for some additional resource and administration costs for Ofgem and companies due to introduction of new tools for RIIO-2 which increase flexibility and protect consumers.		
Total Quantified Impacts		**872**	**901**	**931**
Total, not including switch to CPIH and depreciation of gas assets		**2,843**	**2,872**	**2,901**

[8] For the baseline allowed return on equity and the switch to CPIH the financial impacts for the Electricity System Operator (ESO) are included in the totals. The ESO however only accounts for a small proportion of total NPV presented.

1. Introduction

Purpose

1.1 This annex sets out our final assessment of the impacts of our Final Determinations on network companies and consumers for the RIIO-2 price controls due to commence on 1 April 2021.

1.2 In line with the approach taken at previous stages, most of the assessment relates to the gas distribution, gas transmission and electricity transmission sectors. Where relevant and consistent with the other sectors, we also refer to impacts for the Electricity System Operator (ESO). This includes impacts associated with changes to the cost of equity, cost of debt and switch to CPIH for indexation. However, there are significant differences in the other building blocks of the ESO price control and the ESO analysis does not have a similar counterfactual given the unique nature of a standalone ESO price control.

1.3 To aid the readability of this document all other impact considerations to support decisions made for the ESO are included within our ESO-specific RIIO-2 publications,[9] and these documents together form our assessment.

1.4 Final Determinations reflect the latest milestone in the RIIO-2 price controls. In these determinations we set the outputs that network companies need to deliver, and the associated revenues they may collect. The RIIO-2 price controls cover a 5-year period, which runs from 1 April 2021 to 31 March 2026. For the ESO, we have set costs and outputs for a period of 2 years, from 1 April 2021 to 31 March 2023. The ESO will then submit a further Business Plan for the next period.

1.5 We are publishing this annex as part of the RIIO-2 Final Determinations. The relevant sections of the main Final Determinations documents and associated appendices should be referred to for the detailed evidence on the rationale for each of the decisions and some of the assumptions and calculations we have used to inform our impact assessment.

1.6 This annex provides an assessment of the key impacts associated with Final Determinations. It updates analysis presented in the Draft Determinations Impact

[9] These include our Final Determination in December 2020, Sector Specific Methodology Decision in May 2019, and additional ESO methodology decisions in August 2019 and October 2019.

Assessment (IA)[10] for those areas where there have been material changes from Draft Determinations to Final Determinations. It also considers responses to the DDs Impact Assessment consultation, including a review by PwC undertaken on behalf of the Energy Networks Association (ENA). Further, it also updates our assessment of the customer bill impacts arising from our Final Determinations.

Structure and content

1.7 This annex is structured as follows:

- Section 1 describes the purpose of this appendix, its structure and content
- Section 2 sets out the context for this impact assessment, including the background to the next price controls. It also summarises the work undertaken in the two previous impact assessments and explains how it relates to this document
- Section 3 presents feedback received from stakeholders on previous versions of the IA. It also sets out to our response to the feedback received
- Section 4 presents our updated analysis of the impacts on consumers and network companies of our Final Determination decisions, identifying and assessing the main changes from our Draft Determination proposals published in the summer
- Section 5 presents our estimates of the indicative bill impact of our Final Determinations decisions, including updated analysis of distributional impacts on different groups of consumers
- Section 6 sets out our updated view of the main risks and uncertainties associated with our updated impact assessment.

[10] See: RIIO-2 Draft Determinations Impact Assessment, July 2020.

2. Context

In this Section, we set out the context for this impact assessment, including the background to the next price controls. We also summarize the work undertaken in the two previous impact assessments and explain how it relates to this document.

Rationale for intervention

2.1 The activities undertaken by energy network companies present the features of a "natural monopoly", which means it is most efficient for a single firm to produce a number of outputs rather than two or more firms.[11] The presence of a natural monopoly leads to a market failure whereby the monopoly firm might exploit its "market power" and charge consumers an excessively high price or produce poor quality outputs. Ofgem uses price controls to limit what companies can charge to use their networks and to encourage firms to produce outputs that consumers value.

2.2 The current RIIO-1 network price controls for electricity and gas transmission and gas distribution companies were set for an eight-year period, which will end in March 2021. A new set of price controls will need to be in place for the start of the next price control period on 1 April 2021.

2.3 Ofgem needed to decide whether to continue using the existing RIIO framework, a variant of it, or develop a different regulatory approach in setting these future price controls. In 2017, we started a process ("RIIO-2 Journey") to define the regulatory framework as well as the detailed methodologies that would apply to electricity and gas transmission and gas distribution companies from April 2021. Below we present the key stages and main decisions made during this process.

Problem under consideration

Network company performance under RIIO-1 price controls

2.4 The current RIIO-1 regulatory framework to date has delivered well for consumers, especially in terms of some specific outputs, such as reliability and

[11] This situation arises due to the presence of economies of scale and scope when an industry comprises a large proportion of fixed costs. See Decker (2015), Modern Economic Regulation, for a definition of natural monopoly, pages 14-15.

service quality. Energy networks deliver high levels of reliability and consumers are highly satisfied with the service provided by local network operators.[12] There is also evidence that companies are increasingly deploying innovative solutions in managing their networks.

2.5 Ofgem has assessed the overall financial performance of network companies during the RIIO-1 price controls using a measure called the Return on Regulatory Equity (RoRE). RoRE is an estimate of the financial return achieved by regulated companies' shareholders during a price control period based on actual (and forecast) performance. It is a useful way to gain an overall picture of how regulated companies have been performing under the price control.

2.6 Measured in terms of operational RoRE (which excludes debt and tax performance), most of the network companies have been achieving double-digit, or close to double digit returns in real terms throughout the RIIO-1 price control period.[13] There are a number of factors driving this performance. Some of this performance is because of greater efficiency, good performance against targets or companies innovating to cut costs.

2.7 However, systematic outperformance may also indicate that companies have been set allowances and targets that were easier to outperform than anticipated. This may arise because the presence of "information asymmetry"[14] between the regulator and regulated companies can create incentives for companies to act strategically, for example by misrepresenting information, such as overstating costs.[15]

2.8 Returns received by network companies have been higher than Ofgem expected when the RIIO-1 price controls were set. Beyond potential efficiency

[12] Please see Ofgem (2018). RIIO-2 Framework Consultation, page 15. In gas distribution, satisfaction has improved with some GDNs consistently achieving scores over 9/10 and the number of complaints has reduced by 20% since 2013-14. Since 2013, more than 64,000 consumers experiencing fuel poverty have been able to get a connection to the mains gas grids so they can get cheaper energy. The electricity network companies have reduced the carbon footprint of their networks in the past two years by 850,000 tCO2e. The innovation stimulus has raised research and development spending and should result in significant benefits for consumers from nationwide rollout of successful schemes. Our framework has encouraged greater deployment of lower cost operational solutions and competition is starting to take shape in the onshore sector.

[13] See Regulatory Financial Performance Annex to RIIO-1 Annual Reports, 2018-19 https://www.ofgem.gov.uk/publications-and-updates/regulatory-financial-performance-annex-riio-1-annual-reports-2018-19

[14] Companies' informational advantage in utility regulation has been widely acknowledged in the academic literature, especially in the case of ex ante price regulation regimes. This is emphasised in a paper by Joskow,[14] and also in a recent paper published by the UK Regulators Network (UKRN) on cost of capital. The paper suggests that regulators should consider the impact of information asymmetry when determining companies' cost of capital.

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

improvements, two broad underlying factors that have contributed to higher than expected returns include the following:

- we need to estimate the cost of financing these companies, which is the returns that they pay to investors. Observed market evidence shows that these costs have decreased and remained low since the parameters for RIIO-1 were set and supports our view that the cost of capital for the next regulatory period should be lower

- we face significant uncertainty and are at an informational disadvantage relative to the companies when estimating the cost of implementing their Business Plan, and the effort required to achieve delivery targets. This creates a tendency towards allowed costs being over-inflated, with incentive mechanisms being set too high. Our analysis suggests that information asymmetry is a contributor to the high level of returns seen in RIIO-1.

2.9 A review of RIIO-1 conducted by CEPA for Ofgem[16] supports our view that the returns the companies earned did not reflect their overall risk exposure.[17] This suggests we need to re-balance the risk and reward profile in the RIIO-2 controls, ensuring that customers continue to benefit from high levels of service quality but at lower cost.

2.10 The review conducted by CEPA, coupled with Ofgem's own internal analysis identified a number of issues and possible changes that could be made to improve the price control framework for the next period.[18] Further detail was provided in our draft Impact Assessment.[19]

Options under consideration and previous impact assessments

2.11 Given the issues identified in the RIIO-1 price controls, we considered whether changes to the RIIO framework and its tools for regulating network companies

[16] CEPA (2018), Review of the RIIO framework and RIIO-1 performance, (p.26) We note that the evaluation is based on four years of actual costs and four years of forecasted costs on GD-1, GT-1 & ET-1, and two years of actual costs and six years of forecasted costs in ED-1. We acknowledge that actual cost for the remaining of the price control might change by the end of the price controls and that the close-out process might also impact those numbers. Nevertheless, we consider this the most relevant information available at this point of time.
[17] See CEPA (2018), Review of the RIIO framework and RIIO-1 performance, executive summary, page 3.
[18] In the draft IA, we also considered the broader economic, technological and policy context in which Ofgem would be making decisions about how to regulate network companies in the future. Please see para 1.37. We have not repeated this.
[19] Please see RIIO-2 Draft Impact Assessment, pages 15-19.

were needed and what alternative approaches could be used to solve these problems.

2.12 Our draft IA at the Sector Specific Methodology Decision (SSMD) stage considered four regulatory options for the RIIO-2 price control period:

- **Option 1 - Do nothing (the counterfactual):** Under this option, we would continue to apply the same tools and calibration as applied within RIIO-1
- **Option 2 - Recalibrated RIIO-1:** We would retain similar mechanisms to RIIO-1 but revise certain areas of the regulatory package to reflect learning and evaluation
- **Option 3 - Targeted changes (our preferred option):** We would continue to use incentives to drive consumer benefit but would make more significant changes to certain areas where we identify the potential for increased benefit
- **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

2.13 The purpose of draft IA was to assess whether the regulatory options considered would provide good value for consumers. The expected impact of those options on consumers and network companies were measured relative to the counterfactual, based on a set of defined assumptions.

2.14 Option 3 reflects the methodology we decided to apply to the design of the price controls as confirmed in the May 2019 SSMD. These methodology decisions then provided the framework for the network companies to prepare their Business Plans for RIIO-2, which were submitted in final form in December 2019.

2.15 In our Draft Determinations Impact Assessment (DD IA) published in July 2020 we presented our updated analysis of the expected impacts of our Draft Determinations on consumers and network companies relative to the counterfactual.

2.16 The methodology and approaches presented in the DD IA were consistent with that applied in the Draft IA published in June 2019. The DD IA updated analysis to reflect actual values and approaches proposed in the Draft Determinations proposals relative to assumptions and approaches we would have set under the counterfactual. Specifically, the DD IA took into account:

- decisions on the sector methodologies that had already been made but where the values, and therefore the quantified impacts, had been updated at Draft Determinations at a sector and/or company basis. This is the case for impacts relating to changes to baseline totex allowances and to key financial parameters, eg equity allowances, and indexation of Regulatory Asset Value (RAV) and allowances using CPIH

- Draft Determinations proposals relating to changes to incentives, eg number and types of outputs and totex incentive rates. For these incentives, the methodologies and approach to quantification have been revised to take into account the impact on companies' revenues as well as adjustments to the counterfactual and to some of the assumptions used

- new areas of analysis, reflecting changes to methodologies which have been applied at Draft Determinations. This includes the depreciation of gas transmission network assets, and efficiency adjustments

- external developments such as targets for Net Zero and new requirements, as set out in Ofgem's updated IA Guidance.

2.17 As discussed in Section 1, this appendix sets out our final assessment of the impacts of our Final Determinations on network companies and consumers for the RIIO-2 price controls due to commence on 1 April 2021.

3. Feedback received from stakeholders

In this Section, we present feedback received from a number of stakeholders on previous versions of the IA. We also set out our response to some of the issues identified.

Feedback received from stakeholders

3.1 We received a number of consultation responses in relation to the IA. The main responses specific to the IA came from the ENA and two network companies - SGN and SHE-T. We address the criticisms identified in these responses as well as the wider consultation responses below.

3.2 These responses said that the DD Impact Assessment fell short of best practice and did not provide a sound basis for the policy decisions made in Draft Determinations. We have summarised these criticisms in three main categories. They were: a) that the methodological approach applied was flawed, b) there were significant gaps in the assessment of policy decisions and c) the outcome of the Net Present Value calculations is negative, which would indicate significant problems with our preferred option.

Methodological challenges

3.3 The key criticism of our methodology was that the choice of the counterfactual against which we assess our policies was flawed because it "cherry picked" which policies were in and out of the Business as Usual (BAU) scenario. Because our counterfactual includes a number of policy changes, the responses argued that it does not represent a "do-nothing" option, and this leads to an overestimation of the benefits of our preferred option.

3.4 We accept that, in certain circumstances, the assumptions made in the counterfactual could have been more fully explained. Under certain conditions, this may have caused stakeholders to believe that cherry picking had occurred and to conclude that there was some overestimation of the benefits of our preferred option proposals.

3.5 Choosing a counterfactual requires making assumptions of what would happen in the absence of change and it is therefore subject to some degree of uncertainty,

which may lead to conflicting views about it. The "do nothing" approach[20] proposed by some stakeholders is not in line with our own IA guidance.[21] There are times when comparison against a "do nothing" counterfactual is not informative for the policy decision under consideration. The counterfactual needs to account for exogenous factors over which Ofgem does not have control and which would have happened anyway. As such we carefully considered the counterfactual scenario against which we assessed the impacts of policy changes. Our approach simplifies the IA considerably, but also provides a more accurate view of the differences between RIIO-1 and RIIO-2 that can be attributed to policy changes.

3.6 Our counterfactual was based on what would have been business as usual if we rolled out RIIO-1 for the next price control period. As a result, it leaves some of proposals out of scope. Some of the responses we received indicate that this leads to considerable gaps in our assessment, which we address in the next section.

3.7 The PwC review concluded that our choice of policies included in the counterfactual was selective and increased the benefits of our preferred option. We do not believe this is the case. In building the counterfactual scenario we followed our own guidance. For example, we included the cost of equity and not the cost of debt in our assessment of the policy impacts. The cost of debt is expected to fall significantly during RIIO-2 and if included in the NPV would have doubled the benefits of RIIO-2. However, we decided not to include it as it does not represent the outcome of an Ofgem decision.[22]

3.8 In our view, the key differences we have introduced in RIIO-2 with respect to RIIO-1 are:

- reducing the length of the price control to five years
- changes to the methodologies for setting financial parameters: returns on equity, depreciation policy, change to CPIH for indexation

[20] The "do-nothing" option in previous IAs represents no policy change or 'business as usual'. That is: "the continuation of the RIIO-1 framework, with no material changes to the tools used or overall decisions made".
[21] Ofgem's IA guidance and RPC case studies
https://www.ofgem.gov.uk/system/files/docs/2020/05/impact_assessment_guidance_1.pdf
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/922150/RPC_case_histories_-_counterfactuals_Sep_20.pdf ; p11
[22] Some respondents claim that we should include in the BAU the reduction in the cost of equity proposed in Business Plans by network companies. However, adjusting the cost of equity was clearly a policy choice in RIIO. We assumed that the full RIIO 2 package rebalances risks and returns for network companies and consumers and the proposed reductions in the cost of equity are directly attributed to our policies.

- changes in our approach to incentivising the submission of high-quality Business Plans, the setting of totex incentive rates, (Business Plan Incentive (BPI), Totex Incentive Mechanism (TIM)) and the approach to setting ongoing and benchmarking efficiency
- increasing the use of competition rather than monopoly regulation to drive efficiency
- introducing a Return Adjustment Mechanism.

3.9 We consider that any wider changes included in our proposals are likely to have taken place in every scenario and option. Accordingly, and in line with our defined options, they are not separately accounted for when estimating the impact of RIIO-2 compared to RIIO-1 in our IA.

3.10 The responses also raised other methodological issues as part of the Draft Determinations consultation. These included:

- the impact of a tighter price control and lower incentive rates on the ability of companies to be cost efficient
- the assessment of administrative costs, including in relation to a higher prominence of uncertainty mechanisms
- the methodology applied to benchmarking and ongoing efficiency

Lower incentive rates and the ability to be cost efficient

3.11 Some respondents claimed that we did not take into account the impact of other proposed mechanisms on the ability of network companies to be cost efficient and underspend totex allowances. Network companies claim that there is no evidence that price controls are indeed asymmetrically skewed in favour of network companies. They argue that the assumptions[23] we use in our IA for modelling the impact of changes to totex incentive rates are not credible.

3.12 In our Finance Annex for Draft Determination and the initial evaluation of RIIO-1 carried out by CEPA,[24] we have analysed returns on regulated equity and over-performance. We have found that network companies achieved consistently higher returns than expected across sectors and price control periods:

[23] Low (5%), medium (7.5%) and high (10%).
[24] Review of the RIIO Framework and RIIO-1 Performance https://www.ofgem.gov.uk/system/files/docs/2018/03/cepa_review_of_the_riio_framework_and_riio-1_performance.pdf

> "Our analysis of historical data clearly shows that network companies have, more often than not, spent less than allowances, and beaten performance targets, set by respective regulators. More importantly, this observation holds true across sectors and over time, spanning a diversity of regulatory approaches, 24 price control reviews, almost 50 licensees, over a 20-year period. We believe that this provides a strong basis for our conclusion that, despite the measures included in our proposed RIIO-2 price controls, companies (on average) have the scope to outperform, and investors can have a reasonable expectation of outperformance."[25]

3.13 The analysis reveals a tendency towards totex underspending with an average underspend of approximately 7%. We arrived at the conclusion that this could only be explained if we accept that networks benefit from informational asymmetry. However, we acknowledge that more challenging targets and a higher degree of scrutiny of Business Plans in RIIO-2 might reduce the scope for over-performance.

3.14 Overall, we still consider our assumption provides a reasonable range for outperformance (5-10%). We see little evidence of a correlation between incentive rates and outperformance levels from the current RIIO-1 price controls and we consider that the risk from a potential loss of efficiencies to consumers from lower incentive rates is relatively small. Accordingly, we assess that the incentive rates proposed at Final Determinations remain strong enough to encourage companies to be cost efficient and achieve a level of outperformance within this range. These rates are not significantly different from RIIO- 1 and in line with other price controls.[26]

Treatment of administrative and resource costs

3.15 In our assessment of administrative and resource costs, we considered that the introduction of new tools under our SSMD and Draft Determinations proposals would have resulted in some additional costs for Ofgem and network companies. We also considered that in an eight-year price control there would have been a mid-period reopener, with associated administration and resourcing costs. Under a five-year price control period there is no mid-period reopener process.

[25]See paragraphs 3.120-3.128 Draft Determinations: Finance Annex.
[26] See for example, : https://www.ofwat.gov.uk/wp-content/uploads/2019/12/PR19-final-determinations-Anglian-Water-final-determination.pdf

3.16 While we acknowledge that the introduction of some new tools for RIIO-2 period will lead to higher administrative and resource costs compared to the counterfactual, we do not consider that these will be significant.

Ongoing and benchmarking efficiency

3.17 A final criticism of our methodology highlighted in responses related to the assessment of ongoing and benchmarking (comparative) efficiency impacts.

3.18 Respondents claim we have introduced new features to the counterfactual by updating our estimates of efficiency obtained from the CEPA reports. However, we consider that this update would have been made under the BaU of RIIO-1 activities. Accordingly, we only account for the increased level of ambition.

3.19 Our determination of the ongoing efficiency challenge is based on choosing the expected reduction in totex due to improving efficiency ratios from a range of possible values. This choice is supported by external consultancy work[27] and our own econometric analysis. As we have increased the level of ambition, our assessment of the impact is based on estimating the difference between RIIO-1 and RIIO-2 rates, which is consistent with decisions made in Final Determinations. The approach to evaluate the impact of these two efficiency challenges is therefore based on estimating the difference these two choices made to totex.[28]

3.20 Full details of our approach to ongoing and benchmarking efficiency can be found in the Final Determinations Core Document.

Views on analytical gaps or issues in the Impact Assessment

3.21 Respondents to the consultation also highlighted a number of areas where they believed that the DD IA fell short of best practice guidelines.

3.22 We have not assessed the impact of policies or decisions that do not represent a change from those applied under the RIIO-1 price control. As we have explained above, they are out with the scope of the IA for RIIO-2 which focuses on the impact of the additional policies introduced in RIIO-2. In other words, the scope of the IA is limited to assessing the impact of differences that can be attributed to

[27] CEPA Review of the RIIO Framework and RIIO -1 Performance. See also paper by Pollitt, Anaya on productivity trends. https://www.ofgem.gov.uk/ofgem-publications/146010
[28] A more detailed description of the approach can be found in section 4.

the changes in the price control, and which are not driven by external factors or business as usual adjustments.

3.23 Some of the gaps or issues that respondents highlighted in these responses were:

- the lack of assessment of proposals to deliver Net Zero objectives
- weaknesses in the assessment of output delivery incentives (ODIs)
- the net impact on consumers and network companies as expressed by a negative NPV.

Net Zero

3.24 A particular area highlighted by several respondents is the lack of assessment of the impact of our proposals on the companies' ability to meet Net Zero targets, particularly in terms of a) how baseline totex allowances have been set and b) greater reliance on in-period uncertainty mechanisms in the Draft Determinations proposals.

3.25 The RIIO-1 price controls had uncertainty mechanisms built in ex ante to manage uncertainty. Under the counterfactual, we would also use uncertainty mechanisms to deal with any key changes to central government policies. Therefore, for environmental policy changes, including those relating to decarbonisation policy and the delivery of Net Zero, uncertainty mechanisms would have been applied under both the counterfactual and our preferred option.

3.26 Furthermore, given the accepted view that the pathway to net zero is uncertain, an assessment of the Net Zero related uncertainty mechanisms against a strictly "do nothing" scenario would be based on assumptions supported by little evidence. This only reinforces the increasing use of uncertainty mechanisms required to protect consumers when facing significant levels of uncertainty in the type and value of network investment required. The rationale and evidence supporting our approach to Net Zero is explained in Chapter 8 of the Final Determination Core Document published alongside this IA.

3.27 Uncertainty about the need for future investment does not mean that Net Zero proposals have not been assessed. We have consulted widely on our approach. Achieving Net Zero is likely to require fundamental change to how the gas and electricity networks are built and operated. The reopeners are not the only way we are asking companies to respond to Net Zero. For example, given its central role in the energy system, we have challenged the ESO to be highly ambitious

and work closely with other industry parties and wider stakeholders to ensure there is a coordinated, whole system approach. RIIO-2 will be the first price control that is specifically tailored for the ESO to help unlock substantial benefits for consumers by helping to shape the best pathway to Net Zero.

3.28 Some respondents claim that we should assess the impact of these proposals under different possible pathways to Net Zero. We have set out different Net Zero scenarios in the Final Determination Finance Annex. However, there is a number of pathways to Net Zero and at this stage there is insufficient information on the likelihood of each. Consequently, the quantification of these impacts against a "do nothing" counterfactual would not provide robust information to support decision making.

Output Delivery Incentives

3.29 For our analysis of Output Delivery Incentives (ODI) in the Draft IA, we created numerous scenarios to assess the impact on revenues from our proposals to change some of the incentives, targets and outputs. But the limitations of this analysis were recognised in the SSMD consultation. Consequently, in our Draft Determination we decided to limit the quantification of the impact to providing a view of caps and collars. Accordingly, our analysis presented a comparison of the potential rewards and penalties with respect to the counterfactual.

3.30 Other impacts of ODIs in the quality of outputs, security and resilience are assessed in Section 4.

Negative NPV

3.31 Some respondents to the Draft Determination consultation claim that a negative NPV for the preferred option implied that our proposals would not be preferable to the counterfactual. This NPV estimate references includes the impact on both consumers and companies over the 5-year price control period. It excluded benefits that could not be quantified due the lack of data. If we consider the impact on consumers alone the figure was not negative. At Draft Determinations we estimated that the expected net benefits to consumers was £3.2 billion. This value has reduced at Final Determinations to £2.9 billion (excluding the switch to CPIH and gas depreciation).

3.32 Accordingly, we remain confident in our assessment that the RIIO-2 price controls will deliver substantially positive benefits for consumers through the delivery of high-quality network services at a lower cost to consumer bills.

3.33 Further, we note that the negative NPV is the outcome of several factors:

- the dominant impact by far is a direct transfer from investors to consumers that is the result of setting lower returns on equity. This is NPV neutral because gains for consumers are the same as losses for investors
- the lower incentive rates in the TIM will also drive a transfer from investor to consumers that is NPV neutral as network companies will experience lower informational rents
- however, we assume that, under some conditions, lower totex incentive rates may result in a reduction of effort, which is not NPV neutral.

3.34 Analytically, the difference between consumer benefits and costs for network companies, which led to the net impact of -£175m over the 5-year price control period measured in our NPV analysis in the DD IA,[29] is the consequence of changes we have made to reduce the incentive rate (TIM). Compared to the counterfactual these have been reduced around 12 percentage points on average, based on proposals at Final Determinations. In simple terms, this increases the proportion of underspend that consumers get to keep, which is good for consumers. This is what we refer to in the IA as the 'first-order' effect. However, we acknowledge that lower sharing factors may reduce the incentive for firms to find cost efficiencies – what we referred to as the 'second-order' effect. At best, companies will still find as many cost efficiencies as they would have under a higher sharing factor and the amount of underspend is not affected at all. In which case there is only a transfer from companies to consumers. Furthermore, under our central case we assume that a reduction in sharing factor of 20% will lead to a 10% reduction in underspend. In other words, overall reductions are reduced, but consumers retain a higher proportion of the underspend.

3.35 The assumptions applied are clearly set out in the Draft IA, including limitations of the analysis, such as the inability to quantify third order effects – that is, how much of the underspend is genuine cost improvement and how much is "information rent". The more information rent there is the lower the negative net

[29] Please see page 7, RIIO-2 Draft Determinations Impact Assessment.

impact. We do not know how large this effect may be and did not attempt to quantify it for that reason.

3.36 Whilst the net impact for consumers and network companies combined resulted in a negative NPV, there is good reason to believe that the negative NPV would be lower in reality due to the unquantified third order effect. We explained this reasoning in our Draft IA.[30.]

[30] See RIIO-2 Sector Specific Methodology Decision, May 2019, Chapter 11 and DDs IA. discussion about the third order effect- paras 2.67-2.71

4. Assessment of impacts on companies and consumers

In this Section, we present our updated analysis of the impacts arising from our Final Determinations on network companies and consumers compared to the counterfactual. The updated analysis takes into account material changes from Draft Determinations to Final Determinations.

Summary of impacts

4.1 In this section we present our updated assessment of the impact of our Final Determinations proposals option on companies' revenues and financeability and on energy consumers arising from:

- changes to financial parameters
- changes to incentives
- changes to other elements of the regulatory framework
- administration and resource costs.

4.2 We find that, over a five-year period, company revenues would decrease by approximately £3 billion compared to the counterfactual. Consumers would benefit by approximately £2.9 billion compared to the counterfactual. As in the Draft and DD IAs, we note that most of the expected quantified impacts on consumers arise from a transfer from companies to consumers due to changes to the allowed return on equity.

4.3 We set out the estimated impacts on network companies in Table 3. Similarly, in Table 4, we present the impact on consumers.

4.4 In line with the methodology in the Draft and DD IAs, we have undertaken a partial quantification of our Final Determinations. Our updated analysis is based on various assumptions which are explained throughout this section.

4.5 Most of the figures presented in the Tables 3 and 4 refer to the gas and electricity transmission, and gas distribution sectors. However, for the cost of equity, and switch to CPIH, financial impacts for the ESO are included. The ESO, however, only accounts for a small proportion of the total NPV presented.

4.6 We note that the switch from the RPI to CPIH for indexation of the RAV and allowed returns will be value-neutral to both investors and consumers in the long-run (consumers will be neither worse off nor better off). However, it does affect the timing of repayment of the RAV,[31] meaning that it reduces consumer benefits within the RIIO-2 period. Similarly, the change in the depreciation of gas transmission assets value-neutral in the long-run, but it will result in reduced benefits to consumers within RIIO-2 period.

4.7 We note that our estimates of the impacts related to changes in the totex incentive rate, ongoing efficiency and benchmarking efficiency disregard the slow money[32] component of totex. Some of this money would have been added to the RAV and would be recovered over a longer time period. Therefore, this estimate in Tables 3 and 4 of the impact on companies should be considered an overestimate of the impacts arising from changes to the methodologies for estimating these parameters.

4.8 To capture how network companies may respond to changes to the totex incentive rates we have modelled three different cases: low, central and high. Under our central case, we expect changes to the totex incentive rate to result in net benefits to consumers.

4.9 Compared to our DD IA, the quantified impact from the cost of equity is lower. This reflects that we have increased the allowed return on equity to reflect latest developments and our views of market conditions for investment in utilities.

[31] The value ascribed by Ofgem to the capital employed in the licensee's regulated business (the 'regulated asset base'). The RAV is calculated by summing an estimate of the initial market value of each licensee's regulated asset base at privatisation and all subsequent allowed additions to it at historical cost, and deducting annual depreciation amounts calculated in accordance with established regulatory methods. These vary between classes of licensee. A deduction is also made in certain cases to reflect the value realised from the disposal of assets comprised in the regulatory asset base. The RAV is indexed to allow for the effects of inflation on the licensee's capital stock

[32] Slow money is where costs are added to the RAV and therefore revenues are recovered slowly (eg over 20 years) from both existing and future consumers. Please See Glossary, RIIO-2 Final Determinations - Core Document.

Table 3: Impacts on consumers from Final Determinations for all sectors over a five-year price control – quantified and non-quantified impacts (£m 2018/19, discounted)[33]

Area of package	Mechanism	Low	Medium	High
Changes to financial parameters	Return on equity	2,606	2,606	2,606
		Network companies will receive less remuneration for equity investment. Key credit ratios are expected to be broadly similar or slightly improved on a notional company basis.		
	Switch to CPIH	-1,508	-1,508	-1,508
		The switch will be value neutral to both investors and consumers in the long-term (consumers will be no better or worse off) but it does affect the timing of the repayment of the RAV. This means the impact on consumers is negative within the next regulatory period but will turn positive in later periods.		
	Depreciation of gas transmission assets	-462	-462	-462
		The change will be value neutral to both investors and consumers in the long-term (consumers will be no better or worse off) but it does affect the timing of the repayment of the RAV. This means the impact on consumers is negative within the next regulatory period but will turn positive in later periods.		
Changes to incentives	Totex Incentive Mechanism and Informational Tools	58	87	117
		The impact from changes to informational tools is uncertain. Some level of information asymmetry expected to persist over time.		
	Output Delivery Incentives	Consumers expected to benefit from improved service quality driven by more stretching ODI targets and additional outputs.		
	Price Control Deliverables	Consumers expected to benefit from only funding activities that are delivered.		
	Ongoing efficiency	158	158	158
	Benchmarking efficiency	21	21	21
Changes to other elements	Return Adjustment Mechanisms	0	0	0
		Assumed that RAMs unlikely to be triggered under any scenario.		
	Innovation Funding	No material change assumed between counterfactual and RIIO-2 approach. Starting value for innovation funding consistent with that made available under RIIO-1.		
	Competition	Increase use of competition likely to deliver consumer benefits if projects are approved during RIIO-2 period.		
Administration costs		Potential for some additional resource and administration costs for Ofgem and companies due to introduction of new tools for RIIO-2, which increase flexibility and protect consumers.		
Total Quantified Impacts		**872**	**901**	**931**
Total, not including switch to CPIH and depreciation of gas assets		**2,843**	**2,872**	**2,901**

[33] For the baseline allowed return on equity and the switch to CPIH for indexation the financial impacts for the Electricity System Operator (ESO) are included in the totals. The ESO however only accounts for a small proportion of total NPV presented.

Table 4: Impacts on network companies' revenues from Final Determinations for all sectors over a five-year price control – quantified and non-quantified impacts (£m 2018/19, discounted)[34,35]

Area of package	Mechanism	Low	Medium	High
Changes to financial parameters	Return on equity	-2,606		
		Network companies will receive less remuneration for equity investment. Key credit ratios are expected to be broadly similar or slightly improved on a notional company basis.		
	Switch to CPIH	1,508		
		The switch will be value neutral to both investors and consumers in the long-term (consumers will be no better or worse off) but it does affect the timing of the repayment of the RAV. This means the impact on consumers is negative within the next regulatory period but will turn positive in later periods.		
	Depreciation of gas transmission assets	462		
		The change will be value neutral to both investors and consumers in the long-term (consumers will be no better or worse off) but it does affect the timing of the repayment of the RAV. This means the impact on consumers is negative within the next regulatory period but will turn positive in later periods.		
Changes to incentives	Totex Incentive Mechanism and informational tools	-177	-265	-354
		Impact unclear. Change in informational tools may not reduce informational rents.		
	Output Delivery Incentives	Average performance across sectors uncertain. Targets set to reflect recent historical performance with narrower cap and collar ranges. Potential for additional revenues from bespoke ODIs for some network companies.		
	Price Control Deliverables	Companies receive revenues only from work delivered.		
	Ongoing efficiency	-158		
	Benchmarking efficiency	-21		
Changes to other elements	Return Adjustment Mechanisms	0		
		Assumed that RAMs unlikely to be triggered under any scenario.		
	Innovation Funding	No material change assumed between counterfactual and RIIO-2 approach. Starting value for innovation funding consistent with that made available under RIIO-1.		
	Competition	Increase use of competition likely to deliver consumer benefits if projects are approved during RIIO-2 period.		
Administration costs		Potential for some additional resource and administration costs for companies due to introduction of new tools for RIIO-2 which increase flexibility and protect consumers.		
Total Quantified Impacts		**-991**	**-1,079**	**-1,168**
Total, not including switch to CPIH and depreciation of gas assets		**-2,961**	**-3,050**	**-3,138**

[34] Figures for Totex Incentive Mechanism, ongoing efficiency and benchmarking efficiency are expenditure numbers rather than revenues. In the long run the NPV 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 IA. Accordingly, our estimates for these parameters should be considered an overestimate of the impact on companies' revenues.

[35] For the baseline allowed return on equity and the switch to CPIH the financial impacts for the Electricity System Operator (ESO) are included in the totals. The ESO, however, only accounts for a small proportion of total NPV presented.

Changes from Draft Determinations and approach to analysis of impacts

4.10 Since the publication of Draft Determinations and of the DD Impact Assessment, we have updated our decisions in a number of areas. These updates are the result of additional information provided by network companies since publication of DDs, and other responses to the DDs consultation.

4.11 While these updates to not materially affect the overall conclusions in our IA, compared to the assessment at DDs there are less benefits to consumers and lower reductions to revenues for networks relative to the counterfactual.

4.12 Specifically, for Final Determinations we have updated our analysis to include:

- an increase of 35 basis points to the allowed return on equity compared to our DDs position across all sectors
- an increase of +8 basis points to allowed return on debt
- an increase to totex allowances of approximately: £1 billion in gas distribution (GD); and £3.3 billion in electricity transmission (ET). A decrease of approximately £0.1 billion in gas transmission (GT). Some minor changes to totex incentive rates to reflect additional information and the increase in totex allowances
- some modest changes to the number and type of ODIs across all sectors as well as some revisions to the caps and collars applied
- changes to the ongoing efficiency rate applied to totex allowances across all sectors.
- a change to the methodology used for setting a benchmarking efficiency adjustment in the gas distribution sector, which results in the introduction of a glide path.

4.13 We provide further detail regarding the impact of these changes in the following subsections, as part of our discussion of impacts on consumers and companies.

4.14 In updating the IA for the factors described above, we have followed the same approach as in the DD IA. The updated analysis measures the relative impact of our Final Determinations proposals against the counterfactual, namely the continuation of the RIIO-1 framework, with no material changes to the tools used or overall decisions made.

4.15 Some 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, and from the demand for network services. In Section 6 we discuss the specific uncertainties associated with our quantified impacts.

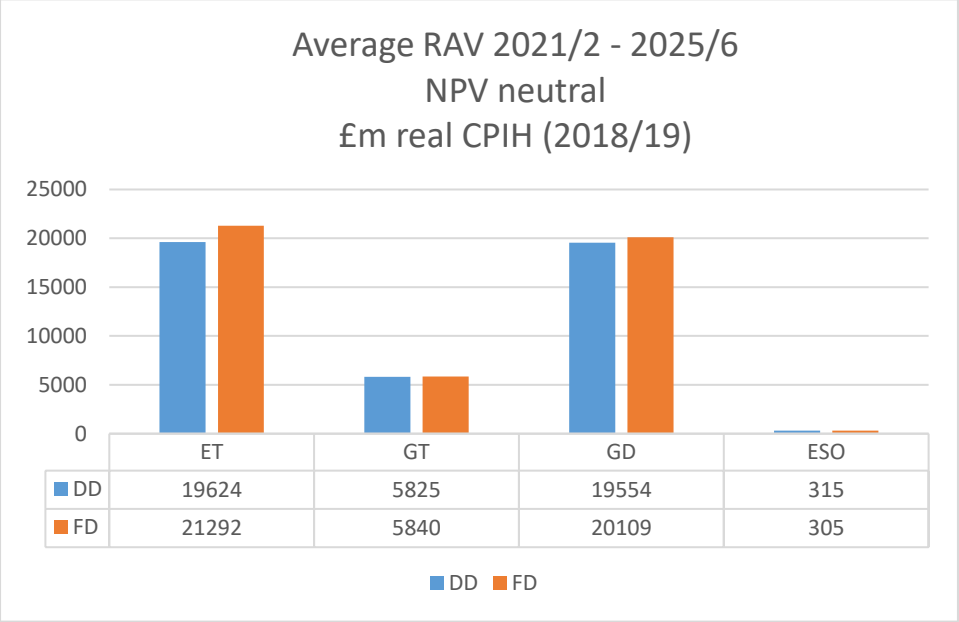
4.16 In the following subsections we update the previous estimates set out in the DD IA, taking into account the changes discussed above.

Impacts from changes to financial parameters

4.17 In our Final Determinations we have made a number of changes to financial parameters for RIIO-2 period. These changes affect our estimates of impacts from return on equity, indexation and depreciation of gas network assets.

4.18 The most significant change, however, is the increase in totex allowances across all sectors. All things equal, the increase in totex leads to a larger Regulatory Asset Value (RAV), which affects any estimated impact from financial parameters. Both equity and depreciation allowances depend directly on RAV. Figure 2 below shows that for ET and GD there has been significant increases in RAV. GT's RAV has been subject to a small increase of £10m and ESO's RAV to a reduction of another £10m.

Figure 1- Changes to Regulated Asset Values in the electricity transmission, gas transmission, gas distribution and for the Electricity system operator from Draft Determinations to Final Determinations (£m 2018/19)



4.19 Compared to Draft Determinations, we have changed gearing levels, and allowed higher returns on equity and debt. These changes have been fully described in the Final Determination Finance Annex. We have updated our calculations with new estimates for the cost of capital and gearing ratios, shown in Table 5 below, to produce a final set of impacts on allowed return on equity, the change in indexation and depreciation of gas network assets.

Table 5 - Assumptions used for calculating impacts from changes to financial parameters

Average – five years ending 31st March 2026						
Component	**SHE-T**	**Other ET**	**GT**	**GD[1][36]**	**GD [2][37]**	**ESO**
Allowed return on debt	1.59%	1.82%	1.82%	1.82%	1.88%	-0.07%
Notional gearing	55%	55%	60%	60%	60%	55%
Allowed return on equity	4.02%	4.02%	4.30%	4.30%	4.30%	7.55%
Allowed return on capital	2.69%	2.81%	2.81%	2.81%	2.85%	3.36%

[36] **GD[1]** companies: SGN Southern, Cadent
[37] **GD[2]** companies**:** SGN Scotland, NGN, WWU

Return on equity

4.20 We have followed the same methodology described in the DD IA to quantify the impact of these changes on network companies and consumers. This means we assess the impact of RIIO 2 allowed returns on equity by comparing it to what would had been if we kept the cost of equity consistent with RIIO 1.

Switching indexation of the RAV and allowed return to CPIH

4.21 In Final Determinations, we set out that we will implement an immediate switch from RPI to CPIH. Under the counterfactual we would continue using RPI as an estimate of inflation, in the next regulatory period. We have updated this impact to take account of the increase in totex. We have not made any more changes in this area.

4.22 The switch to CPIH has 3 main effects: a) the RAV is smaller in future compared to using RPI, so less return is earned; b) the allowed return is increased by the size of the estimated wedge between RPI and CPIH; and c) a smaller RAV means a lower depreciation allowance. For the purposes of estimation of impacts the size of the wedge between RPI and CPIH is estimated to be 0.813%.

Changes to gas depreciation policies

4.23 In Final Determinations, we have decided to align depreciation policy for GT with GD so that the depreciation policy for both gas sectors is on a 45-year front loaded basis, with the backlog of depreciation recovered over 20 years beginning at the start of RIIO-2.[38]

4.24 This change would increase NGGT's allowed revenues in the RIIO-2 period by approximately £119m per year. We have used this value to estimate the impact over a five-year period.

[38] https://www.ofgem.gov.uk/system/files/docs/2020/07/draft_determinations_-_finance.pdf para 10.12 p 143.

Table 6 - Impact on companies' revenues from changes to allowed return on equity, switch to CPIH and depreciation policies (£m 2018/19, discounted)[39]

Financial Impacts 2021/2 – 2025/26 £m real 2018/19 CPIH					
Sector	**ET**	**GT**	**GD**	**ESO**	**Total**
Return on equity	1,421	316	873	-4	2,606
Switch to CPIH	-676	-184	-642	-6	-1,508
Depreciation	-	-462	-	-	-462
Total	745	-330	231	-10	635

4.25 Table 6 shows the aggregate impact by sector associated with changes in the financial parameters. These impacts show the difference in expected revenue from RIIO 1 to 2 from these changes. They are a net transfer from network returns to consumers. A positive value indicates a net gain for consumers and a loss for networks and vice versa. Over the long term the impact is value neutral.

Impacts from changes to incentives

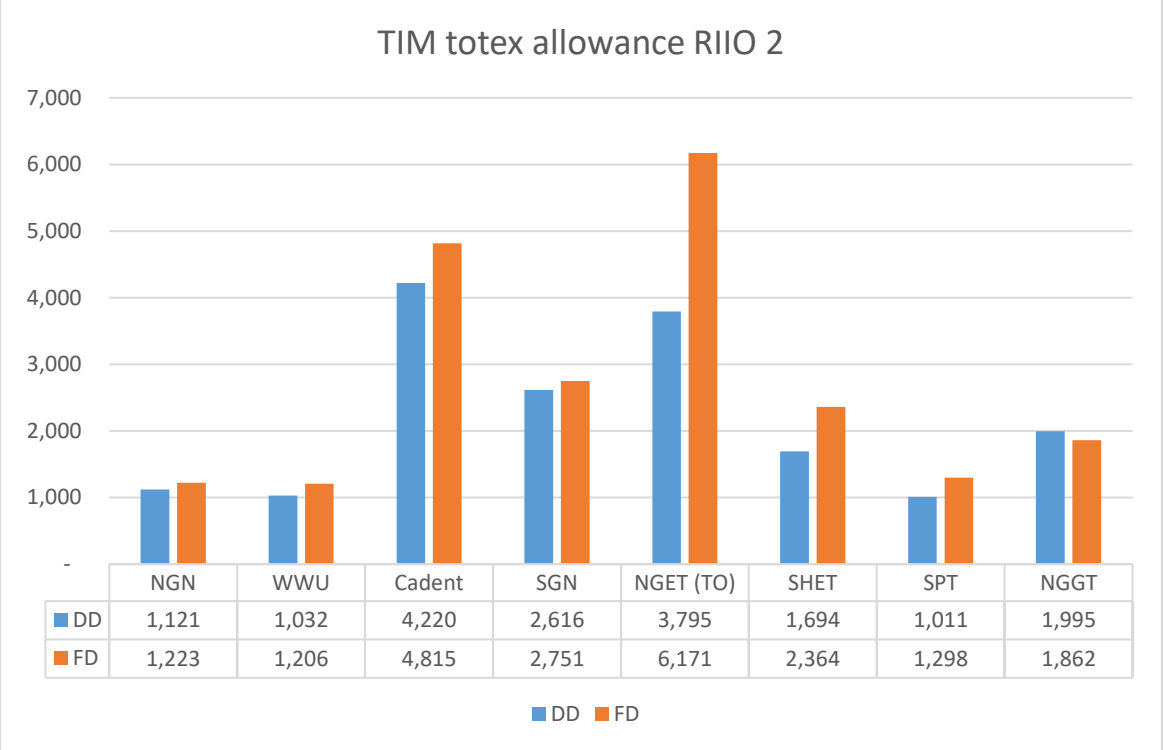
4.26 As discussed above, in our Final Determinations we have made a number of changes to totex allowances and incentives rates applied compared to our Draft Determinations proposals. In the following sub-sections, we explain those changes and how they affect our estimates of impacts.

Impact from changes to informational tools

4.27 In the Draft Determinations we quantified the direct impact of moving away from the Information Quality Incentive (IQI) and using the BPI instead. In this document, we have followed the same methodology as in the DD IA, and updated our calculations, based on Final Determinations' baseline totex covered by the TIM.

[39] For the baseline allowed return on equity and the switch to CPIH the financial impacts for the Electricity System Operator (ESO) are included in the totals. The ESO however only accounts for a small proportion of total NPV presented.

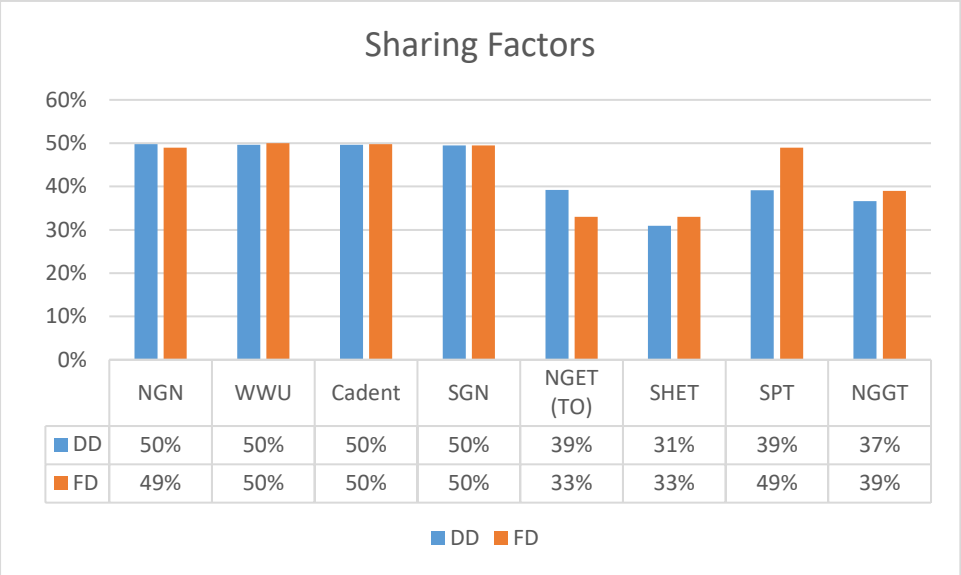
Figure 2 – Totex allowances subject to totex incentive rates in electricity transmission, gas transmission and gas distribution sectors (£m, 2018/2019)



	NGN	WWU	Cadent	SGN	NGET (TO)	SHET	SPT	NGGT
DD	1,121	1,032	4,220	2,616	3,795	1,694	1,011	1,995
FD	1,223	1,206	4,815	2,751	6,171	2,364	1,298	1,862

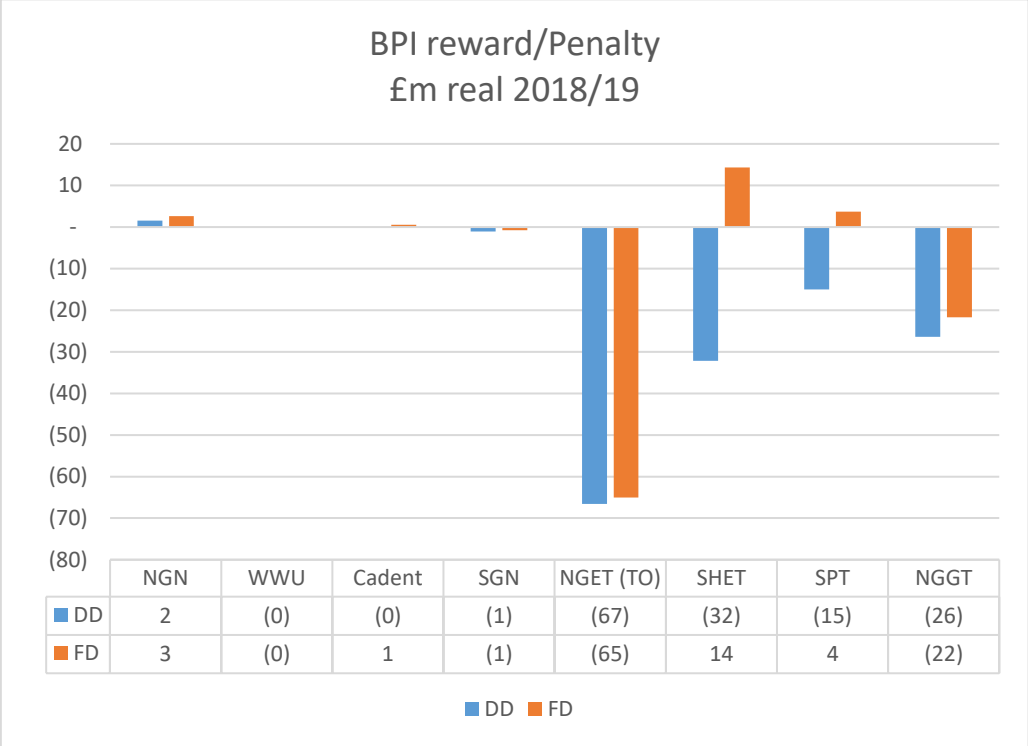
4.28 Figure 3 above shows baseline totex expenditure covered by the TIM. The main changes in totex allowances between Draft and Final Determinations are due to the fact that more expenditure proposals have been justified by further evidence being submitted by companies since Draft Determinations, but also due to moving expenditure previously covered by non-TIM uncertainty mechanisms so that it is now subject to the TIM, in response to information submitted by network companies during the consultation period. The most significant change is the increase of £2.5bn for National Grid Electricity Transmission (NGET), but there is also an increase of £4bn in totex across all sectors. For further details on the recategorizations please refer to the respective sector annexes.

Figure 3 - Totex incentive rate applied in electricity transmission, gas transmission and gas distribution sectors.



4.29 Figure 4 above shows that totex incentive rates have been broadly similar between Draft and Final Determinations with some exceptions. These exceptions reflect the impact on totex from the new evidence submitted and our subsequent categorisation of the expenditure as high or low confidence. The impact is a lowering of the incentive rate for NGET and increases for Scottish Hydro Electric Transmission (SHET), SP Transmission (SPT) and National Grid Gas Transmission (NGGT).

Figure 4 – Rewards and penalties under the Business Plan Incentive (BPI) in electricity transmission, gas transmission and gas distribution sectors, (£, m 2018/19)



4.30 Figure 5 above shows differences in rewards and penalties for the Business Plan Incentive (BPI) between Draft and Final Determinations. There have been some more significant changes to BPI outcome in the ET sector as a result of additional information provided by the Transmission Owners (TOs) in response to Draft Determinations. In the other sectors, there have been relatively small changes.

Table 7 - Impact of changes to informational tools over a five-year price control (£m, 2018/19)

Sector	Counterfactual - Reward/penalty under the IQI	Final Determinations proposals - Reward/ penalty under the BPI	Delta: impact on the network companies
Gas Transmission	(13)	(22)	(9)
Gas Distribution	88	2	(85)
Electricity Transmission	146	(47)	(193)
Total impact	221	(66)	(287)

4.31 Table 7 updates the impacts of changes made on the BPI outcome post Draft Determinations. Differences between Draft and Final Determinations in the

counterfactual are primarily driven by changes in totex, variations in the ratio of low to high confidence expenditure and the move to more disaggregated assessment approach for Stage 4.[40]

4.32 It is difficult to make comparisons against the IQI because we cannot accurately assess how networks would have behaved under the counterfactual. Table 7 shows the results of the BPI compared to the rewards obtained using the RIIO-1 IQI scores and Ofgem's view of baseline costs. With these two inputs, we have derived what the company view of baseline costs would have been under the IQI mechanism and updated the Final Determination BPI estimates. This outcome relies heavily on the input assumptions. However, for a notional efficient licensee, the scope for rewards is similar as the BPI can provide rewards up to 2% of totex.

Impacts from changes to the totex incentive mechanism

4.33 Our updated analysis of the impacts from changes to the totex incentive mechanism is shown in Table 8 below. In updating the analysis, we have used the same assumptions and mapping scenarios as in the DD IA:

- three levels of totex underspend, 5%, 7.5% and 10%
- three assumptions about the behavioural response of network companies to lower incentives:
    - a mapping factor of 1:0 assumes that for any 1% change in the sharing factor there is zero change in the level of underspend
    - a mapping factor of 2:1 means that for every 1% change in the sharing factor there is a 0.5% percent change in underspend
    - equally, a mapping factor of 1:1 means that for every 1% change in the sharing factor there is a 1% change in underspend.

[40] See Chapter 11 of the Final Determinations Core Document.

Table 8 - Impact on totex revenues resulting from first and second order effect for all sectors (£m, 2018/19)[41]

Underspend scenario	5.0% underspend		7.5% underspend		10.0% underspend	
Impact	Network companies	Consumers	Network companies	Consumers	Network companies	Consumers
Mapping 1:0	(129)	129	(193)	193	(258)	258
Mapping 2:1	(177)	58	(265)	87	(354)	117
Mapping 1:1	(225)	(12)	(337)	(19)	(450)	(25)

4.34 The results in Table 8 are of a similar magnitude to the effects quantified in Draft Determinations. As a result of the combined first and second order effects,[42] company revenues and benefits for consumers are lower with both a lower incentive rate and a lower mapping factor. This is because we assume that, in certain circumstances, lower incentive rates could reduce the incentive for companies to find efficiencies.

4.35 At the lower end of the range in this illustration, the collective reduction in company revenue would be between £129m and £258m across sectors. This represents the scenario in which companies do not reduce levels of underspend in response to a reduction in the totex incentive rate (1:0 mapping factor).

4.36 At the opposite end of the range, the collective reduction in company revenue would be between £225m and £450m across sectors. This represents the scenario in which companies reduce their level of underspend by the same amount as their totex incentive rate was reduced compared to the counterfactual (1:1 mapping factor).

4.37 Under our central case, where we assume that companies reduce their underspend by half of the reduction of their totex incentive rate, the collective reduction in company revenue would be between £177m and £354m across the sectors. Under the same mapping scenario consumer benefits would range between £58m and £117m.

[41] Our estimates of the related impacts from proposed change to changes to the totex incentive rate, disregard the slow money component of totex, which is added to the RAV 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.
[42] See the Draft Determination IA for a more detailed description of the methodology. https://www.ofgem.gov.uk/system/files/docs/2020/07/draft_determinations_-_impact_assessment.pdf

Analysis of third order effect under Final Determinations

4.38 Under the second order effect, we have assumed that the full reduction in underspends reflects lost cost efficiencies. However, a lower totex incentive rate might also reduce companies' incentives to overstate their cost forecasts as the benefits arising from overstated costs would be lower. It also reduces the ability for firms to gain informational rent – some of the second order loss in efficiency may not materialise if they actually were overstated costs. Therefore, a reduction in underspends may represent a combination of reduced information rents and lost cost efficiencies.

4.39 As we have not quantified this impact, we assume the same outcomes as in our Draft Determination assessment. Table 9 combines the results of the expected impacts from changes to the informational tool and the totex incentive mechanism under Draft Determinations proposals.

Table 9 - Summary of expected impacts from changes to totex incentive rate and informational tools under Final Determinations proposals, (£m, 2018/19)

£m 2018/19, discounted	Impact on the network companies	Impact on consumers
Changes to informational tools	Unclear - historical information suggest that a degree of information asymmetry persists over time and therefore companies might still earn informational rents	Unclear
Changes to totex incentive rate – central case (7.5% underspend, first and second order effects only)	-265	87
Changes to totex incentive rate - third order effect	Unclear - historical information suggests that a degree of information asymmetry persists over time therefore companies might still earn informational rents [43]	Unclear

[43] While delivery of cost efficiencies may come at some cost to companies, we may assume that these costs are captured within company Business Plans with a corresponding impact on their totex allowances (where they are efficient). Therefore, while information rents may not come at such a cost, the company will benefit roughly equally from underspends delivered as a result of cost efficiencies as they do from information rents.

Impacts from output delivery incentives, price control deliverables and licence obligations

4.40 We use the provision of revenues and the targeted application of financial incentives on companies to deliver certain outputs within a price control period where there is evidence they will deliver consumer value.

4.41 In SSMD, we established the RIIO-2 outputs framework for gas distribution and transmission network companies. This included three components:

- Outcome Delivery Incentives (ODIs): reputational (ODI-R) or financial (ODI-F) incentives aimed at driving service improvement
- Price Control Deliverables (PCDs): specify the deliverable(s) for the funding allocated, and the mechanism(s) to refund consumers in the event an output is not delivered (or not delivered to a specified standard)
- Licence Obligations (LOs): set minimum standards that network companies must achieve.

4.42 In Final Determinations, we have set challenging output targets, ensuring the companies build on RIIO-1 performance levels, with more stretching targets to drive improvements in RIIO-2. We have also linked a greater proportion of totex allowances to outputs, with mechanisms in place to return funding to consumers where work is not delivered, or not delivered to a specified level.

4.43 In line with the previous IAs, our updated analysis does not seek to explore the individual impacts of each LO, PCD, and ODI, rather, we consider the broader impact of the Final Determinations for outputs compared to the counterfactual.

4.44 Our updated analysis of each component of the outputs framework is discussed below.

Output Delivery Incentives

4.45 The Final Determinations[44] present the final package of Output Delivery Incentives (ODIs) that we set for the RIIO-2 period. In each sector, the package is made of outputs that have retained from RIIO-1, outputs that have been

[44] Please see RIIO-2 Final Determinations GT Annex, Chapter 2; RIIO-2 Final Determinations ET Annex, Chapter 2; RIIO-2 Final Determinations GD Annex, Chapter 2.

removed from RIIO-1, and new ODIs that we have introduced for RIIO-2. Table 10 below presents the final list of ODIF in each sector. The table updates information we have presented in the DDs IA in Table 17.[45]

4.46 Since Draft Determinations, there have some minor changes in each sector. These are:

- in ET, a new financial ODI has been introduced, TO:SO Optimisation. Further, the bespoke Environmental Scorecard now applies to all electricity transmission companies. Additionally, ODIs caps and collars have also been tightened
- in GT, there has been no change in the number and types of outputs but some incentive targets, and cap and collars have been tightened
- in GD, we have added a new bespoke ODI-F for collaborative streetworks, and have decided that rewards/penalties for this and the shrinkage incentive should go through the TIM.

Table 10: Common and bespoke[46] Financial ODIs in Final Determinations

Sector	ODI-Fs in counterfactual and Final Determinations	New RIIO-2 ODI-Fs	RIIO-1 ODI-Fs that have been removed for RIIO-2
Gas distribution	• Shrinkage and environmental emissions[47] • Customer satisfaction survey • Complaints metric • Network Asset Risk Metric	• Bespoke Collaborative streetworks[48] • Unplanned interruptions[49]	• Discretionary reward scheme • NTS exit capacity • Stakeholder Satisfaction Incentive

[45] Please see RIIO-2 Draft Determinations – Impact Assessment, page 44, table 17.
[46] The ODIs that we have set in our RIIO-2 Final Determinations are either 'common' or 'bespoke'. Common ODIs apply to all sectors or all companies within a sector (eg all GDNs or TOs). In contrast, bespoke outputs are specific to individual companies; they seek to reflect the needs of, and feedback that, companies received from their consumers and other stakeholders.
[47] In RIIO-1 there were two separate incentives: i) a shrinkage incentive and ii) an environmental emissions incentive. For the RIIO-2 period, we have merged both incentives and rewards and penalties are capped at ±0.25% of base revenue. The recalibration of the incentive as well as the introduction of a cap and collar reduce the scope for rewards/penalties in RIIO-2. Given the scope of the incentive is narrower and more focused on what the GDNs can fully control, we expect this to result in greater consumer benefits.
[48] This is a bespoke ODI-F that only applies to Cadent London and East of England, and SGN Southern.
[49] In RIIO-1 there was an ODI-R for unplanned interruptions. For RIIO-2, we have introduced a penalty-only ODI-F worth up to 0.5% of base revenue. For Cadent's four networks, this is sub-divided into two separate ODIs (based on whether the interruption occurred in a multi-occupancy building or not), each worth up to 0.25% of base revenue.

Sector	ODI-Fs in counterfactual and Final Determinations	New RIIO-2 ODI-Fs	RIIO-1 ODI-Fs that have been removed for RIIO-2
Electricity transmission	• Timely connections • SF6 • Energy Not Supplied • Network Asset Risk Metric	• Quality of Connection Survey • Environmental Scorecard • TO:SO Optimization	• Stakeholder Satisfaction Incentive
Gas transmission	• Demand forecasting • Maintenance • Residual balancing • Constraint management • Greenhouse Gas (GHG) emissions • Customer Engagement Survey • Network Asset Risk Metric50	• Environmental Scorecard	• Stakeholder Satisfaction Incentive • Shrinkage

4.47 In our DD IA, we compared the caps and collars proposed for the ODI-Fs in our Draft Determinations to those that would have applied under the counterfactual.[51]

4.48 As our position in Final Determinations is largely unchanged from Draft Determinations, we consider that our conclusions are still valid.

4.49 As stated in the DDs IA, the tightening of ODI caps and collars means that the potential range of outcomes, in terms of network companies rewards and penalties, has narrowed compared to the counterfactual over a five-year period.[52]

4.50 Overall, our design and calibration of ODIs for all sectors will result in tighter incentive packages compared to RIIO-1. Nonetheless, as discussed in our Finance Annex,[53] based on our analysis of RoRE ranges for the RIIO-2 period, we consider that the ODI package still provides scope for an efficient company to be rewarded.

[50] In RIIO-1, the cap and collar for the NARM (known as NOMs in RIIO-1) was set at ±2.5% of the value of the additional or avoided costs. For RIIO-2, we have revisited the way the incentive is applied. In Final Determinations, the NARM is a penalty only ODI-F/PCD capped at 2.5% of the total NARM funding. In line with our conclusion in the DDs IA, we consider that, when compared against the counterfactual the potential range of outcomes at the cap would be lower under Final Determinations (given it is a penalty-only ODI) and the potential range of outcomes at the collar could be similar or wider depending on the NARM funding/adjustment.
[51] Please see RIIO-2 Draft Determinations, Impact Assessment, Table 18 and para 2.88.
[52] Please RIIO-2 Draft Determinations Impact Assessment, para 2.88.
[53] Please see RIIO-2 Final Determinations Finance Annex, para 3.191.

Bespoke outputs

4.51 In the SSMD, we said that there would be opportunities for network operators to propose bespoke outputs for RIIO-2. This is a feature that was not included in the RIIO-1 framework and therefore would not be present under our counterfactual.

4.52 In their Business Plans, companies proposed over 200 bespoke outputs across all sectors. In our Final Determinations, we have decided to have 35 bespoke outputs, of which there is one bespoke ODI-F in gas distribution,[54] and the remaining are ODI-Rs, PCDs, LOs.

4.53 Our conclusion regarding bespoke ODIs-F is unchanged from our Draft Determinations IA. As noted in the DD IA, we consider that companies might benefit financially if the cost of delivering those is significantly lower than the reward they will be receiving under the caps and collars proposed. Further, we observe that calibrating new bespoke outputs can be challenging as, in some cases, Ofgem may have less historical information or comparative analysis to inform setting of targets and caps and collars. For these reasons, some of the bespoke financial ODIs could result in a company earning all of the upside reward; but there is also a possibility of companies receiving a maximum penalty in the event of significant deterioration of performance.

Reputational ODIs (ODI-Rs)

4.54 In line with our assessment in the DDs IA, we expect ODI-Rs to result in benefits to consumers through improved service delivery. For example, the ODI-Rs associated with the network companies' Environmental Action Plans and Annual Environmental Report are expected to encourage companies to deliver on their environmental commitments during RIIO-2. These commitments are expected to reduce adverse environmental impacts of gas distribution and transmission networks and protect and enhance the natural environment for current and future consumers.

Price Control Deliverables (PCDs)

4.55 In our Final Determinations, we have used PCDs, where appropriate, to specify outputs that are directly funded through the price control. In our Final

[54] In gas distribution, this is the collaborative streetworks ODI-F, which applies to Cadent North London and East of England, and SGN Southern.

Determinations, approximately 50% of baseline totex across gas distribution and transmission sectors is linked to uncertainty mechanisms and PCDs (common and bespoke).

4.56 In our DD IA, we noted that for certain PCDs, over-specifying price control outputs may reduce companies' abilities to innovate and find more efficient solutions to deliver outcomes that benefit consumers. However, we have updated our analysis and consider that our PCD policy does not stifle innovation or efficiencies. Licensees can substitute specified outputs for more innovative or efficient solutions and would not face financial disincentives for doing so.

4.57 The PCD framework encourages licensees to take account of changing circumstances and only deliver the PCD if it continues to be beneficial for consumers or the network.

4.58 Overall, and in line with our conclusion in the DD IA, we expect the introduction of PCDs to result in benefits for consumers as they only pay for work that companies deliver in the price control.

Licence obligations (LOs)

4.59 In Final Determinations, we updated existing minimum standards and have set new minimum standards, for example: the new common LOs for Modernising Energy Data and Environmental Action Plan and for Annual Environmental Reports. We have also considered whether an increase in related cost allowances or existing payments is required to meet the new or stricter minimum standards. This has been accounted for in the totex baseline.

4.60 Overall, and in line with the conclusion reached in the DDs IA, we would expect LOs to generate benefits to consumers. However, we consider that these benefits would not be additional compared to the counterfactual as the changes proposed would have also occurred under the counterfactual.[55]

Summary of impacts resulting from outputs framework

4.61 In Final Determinations, as a result of our calibration of ODI-Fs, the potential for rewards and penalties associated with ODIs has been tightened relative to the

[55] We note that minimum standards for Environmental Action Plan, Modernising Data are in response to changes in government policies.

counterfactual. Overall, and in line with our conclusion in the DDs IA, we consider that the tightening of ODI caps and collars means that the potential range of outcomes, in terms of network companies rewards and penalties, has been narrowed compared to the counterfactual over a five-year period.[56]

4.62 However, we believe that whilst the overall package is tighter than RIIO-1, an efficient company could still earn positive rewards over the five-year price control.

4.63 For bespoke ODI-Fs, companies might benefit financially if the cost of delivering the outputs is significantly lower than the reward they will be receiving under the caps and collars proposed. Because of limited comparability and historical information, bespoke financial ODIs could result in a company earning all of the upside reward.

4.64 Overall, we would expect ODI-Rs and PCDs to result in benefits to consumers. We note there is no change compared to counterfactual for LOs.

[56] Please RIIO-2 Draft Determinations Impact Assessment, para 2.88.

Table 11: Impacts of ODIs, PCDs and LOs on consumers and company revenues under Final Determinations relative to counterfactual over a- five period

Outputs	Final Determinations	
	Network companies	Consumers
Financial Common ODIs	Recalibration of targets and narrower caps and collars range might lead to lower average revenues compared to counterfactual	Consumers expected to benefit from improved service quality driven by more stretching targets.
Bespoke Financial ODIs	Companies might benefit from additional rewards	Consumers expected to benefit from improved service quality driven by delivery of additional outputs.
Reputational ODIs and PCDs	Reputational incentive to deliver And for PCDs, companies receive revenues only for work they deliver	Consumers benefit from companies' reputational drive to deliver higher service quality and ensuring they only fund activities that are delivered.
LOs	No changed compared to counterfactual	No change compared to counterfactual

Impacts from changes to efficiency adjustments

Impacts resulting from changes to ongoing efficiency

4.65 In our Final Determinations we have decided the ongoing efficiency adjustment that will apply to most of the cost base in both the transmission and gas distribution sectors over the RIIO-2 period. In deriving this efficiency adjustment, we have used a similar methodology as in RIIO-1, updated to account for the most recent productivity data available from EU KLEMS. In addition, we have included an innovation challenge to reflect the investments that were made in RIIO-1.

4.66 Analysis undertaken on our behalf by CEPA, suggests that an appropriate maximum rate for ongoing efficiency using this methodology is 0.95% for capex and repex (GD only), and 1.05% for opex. This position represents our counterfactual for the IA and is a slight decrease compared to our position at Draft Determinations (1.0% for capex and repex and 1.2% for opex, excluding the innovation challenge).

4.67 We have decided to apply an additional 0.2% innovation challenge, giving us an overall ongoing efficiency rate of 1.15% per year for capex (and repex), and 1.25% for opex for all network companies.[57] In the table below we present our updated estimates of adjustment on network companies totex allowances, calculated using the same methodology described in the DDs IA.[58]

4.68 Our total estimates are lower compared to those set out in the DDs IA. This difference is largely explained by changes made to costs models in the gas distribution sector[59]. There is no change in gas transmission. For the electricity transmission sector, our estimates are higher due to the larger totex base.

Table 12: Impact of changes to ongoing efficiency rate on totex allowances compared to counterfactual – annual figures (£m, 2018/19)

Sector	2021/22	2022/23	2023/24	2024/25	2025/26	Sum (discounted)
Gas distribution	-8.1	-12.1	-15.8	-18.9	-21.9	-70.6
Gas transmission	-1.8	-2.4	-2.8	-3.0	-3.4	-12.4
Electricity transmission	-10.8	-15.9	-17.4	-18.9	-18.1	-75.1
Total	-20.7	-30.4	-36.0	-40.7	-43.3	-158.2

Impacts resulting from changes to benchmarking efficiency

4.69 In our Final Determinations, we have decided to set benchmarking efficiency for the gas distribution sector as a glide path from the 75th percentile in the first year of RIIO-GD2 to the 85th percentile. The latter will apply to the last two years of the price control.[60]

4.70 In RIIO-1, our counterfactual, we used the upper quartile (75th percentile) to calculate the efficient level of costs to form our totex modelling for gas distribution companies. This results in less efficient companies facing a catch-up efficiency challenge relative to more efficient companies. We did not apply this

[57] Please see RIIO-2 Final Determinations - Core Document, Chapter 5.
[58] Please see RIIO-2 Draft Determinations – Impact Assessment, Section 2, table 20 and para 2.114.
[59] This includes: giving some weight to Gross Output measures, which reduced the base for calculating ongoing efficiency challenge by approx. 0.1%; a more recent EU KLEMS data release and correction of minor errors in our model. These changes are explained in our RIIO-2 Final Determinations - Core Document, Chapter 5. Moreover, different to Draft Determinations and as detailed in RIIO-2 Final Determinations – GD Annex, para 3.40, for Final Determinations we stripped out companies' embedded OE assumptions as a pre-modelling adjustment. This change in approach makes the reported figures not fully comparable with those showed at Draft Determinations, para 3.41.
[60] Please see RIIO-2 Final Determinations – Gas Distribution Sector Annex, Chapter 3, para 3.23.

adjustment in the transmission sector as we do not use econometric modelling to establish efficient costs in that sector.

4.71 We note that our decision at Final Determinations is different from our proposal at DDs to set the benchmark at the 85th percentile, for the entire duration of the RIIO-2 period.

4.72 We have quantified, in the table below, the impact of our Final Determinations decisions on companies' totex allowances in the gas distribution sector. The figure has been derived as the difference between applying a glide path from the 75th percentile in the first year of RIIO-GD2 to the 85th percentile in the last two years and our RIIO-1 counterfactual.

4.73 Compared to our estimate at DDs, the change results in a smaller reduction in gas network companies totex allowances, relative to the counterfactual.

Table 13: Impact of changes to benchmarking efficiency on totex allowances compared to counterfactual– annual figures (£m, 2018/19)

Sector	2021/22	2022/23	2023/24	2024/25	2025/26	Total	Total (discounted)
Gas distribution	0	-2.5	-5.1	-7.7	-7.5	-22.8	-20.6

Other impacts on companies and consumers

Impacts resulting from the introduction of a Return Adjustment Mechanism

4.74 As discussed in detail in our Draft IA[61] network company returns in RIIO-1 have been higher than expected when the price control was set. In some cases, the outperformance reflects genuine innovation and efficiency, which improves services and reduces costs for consumers. In others, it has been the result of factors not linked to the companies' own actions.

4.75 In our Final Determinations, for the RIIO-2 price controls, we are introducing a Return Adjustment Mechanism (RAM) to provide protection to consumers and investors in the event that network company returns are significantly higher or lower than anticipated at the time of Final Determinations.

[61] Please see RIIO-2 Draft Impact Assessment, paragraphs 1.11-1.18 for further details.

4.76 The RAM will apply as an adjustment to an individual company's performance if it exceeds certain thresholds. In other words, if a network company exceeds a pre-defined level of RoRE, then we would adjust its returns.

4.77 In the Draft Determinations, we proposed that RAMs would operate where company returns measures in RoRE exceeded threshold levels of ±300 basis points either side of the baseline allowed return on equity.[62]

4.78 In our Final Determinations, we have also decided that a secondary threshold should be introduced at a level of 400bps either side of our baseline allowed return on equity and that returns beyond this level should be subject to an adjustment rate of 90% to cover the potential of extreme levels of out- or underperformance.[63]

4.79 The introduction of an additional threshold does not change the analysis and conclusions we presented in our Draft Determinations Impact Assessment. We still believe that it is unlikely that the RAMs thresholds will be triggered by any company in RIIO-2 and therefore that the impact of RAMs on companies' profits is likely to be zero.

4.80 This reflects our assessment that the RAM would have a low likelihood of triggering across all three sectors. Companies would need to achieve both a significant RoRE return via performance under ODIs and simultaneously a significant under or overspend against totex allowances in order to hit the RAMs threshold of 300bps and a significantly larger under or overspend on the same basis to hit the RAMs upside threshold of 400bps. We believe that the proposed thresholds represent appropriate failsafe levels in the context of historical levels of performance, especially when taking into account other relevant changes in the RIIO-2 package such as the setting of TIM incentive rates via the CDIR method and the greater use of indexation.

Table 14: Impact from the introduction of a Return Adjustment mechanism (RAMs) on company revenues and consumers under Final Determinations over a five-year price control

Impact	Final Determinations
RAMs	Impact on companies' profits and consumers is likely to be zero as we do not foresee a situation where it will be triggered.

[62] https://www.ofgem.gov.uk/system/files/docs/2020/07/draft_determinations_-_finance.pdf para 8.16 p 139.
[63] Please see RIIO-2 Final Determinations – Finance Annex, para 8.15.

Impacts resulting from funding innovation

4.81 Our Final Determinations confirm the approach to innovation funding for the RIIO-2 period set out in our Draft Determinations.

4.82 The overall scale of innovation funding available to network companies in RIIO-2 is expected to at least match that available on a comparable basis under the RIIO-1 price controls. For this reason, and in line with our assessment in the Draft Determinations IA, we conclude that there is no material difference between Final Determinations and the counterfactual. Accordingly, the expected impact on network companies' revenues and consumers is zero.

4.83 We note however that there are potential longer-term benefits from the RIIO-2 Strategic Innovation Fund, as the funding is aimed at supporting high value, strategic innovation projects.

Table 15: Impact of innovation funding on companies' revenues and consumers under Final Determinations over a five-year price control

Impact	Final Determinations
Innovation	No change compared to counterfactual as innovation funding is similar in size to that made available in RIIO-1.

Impacts arising from increasing competition

4.84 Competition in the design and delivery of energy networks is a central aspect of the RIIO-2 price controls. It has a key role to play in driving innovative solutions and efficient delivery that can help us meet our decarbonisation targets at the lowest possible cost to consumers. Our Final Determinations confirm how "late" competition models will feature within the RIIO-2 package across the electricity transmission and gas sectors, with their potential application to projects subject to certain eligibility criteria. Our Final Determinations also address how "early" competition may feature.

4.85 In our previous RIIO-2 Impact Assessments we considered that the introduction of these forms of competition 'for the market' might result in a reduction of revenues and profits for the incumbent network companies and lead to bill savings to consumers.

Late competition

4.86 Under Final Determinations, we have decided that all projects in all sectors that meet the criteria for competition and are brought forward under an uncertainty mechanism will be considered for potential delivery through a late competition model[64].

4.87 Under the counterfactual, late competition models would only be considered in the electricity transmission sector.

4.88 In Draft Determinations, a number of projects were identified as potentially suitable for late competition models. These were identified through the assessment of business plans submitted by companies and through the NOA process[65].

4.89 In Draft Determinations, we proposed that all projects in all sectors that meet the criteria for competition and are brought forward under an uncertainty mechanism will be considered for delivery through a late competition model. We also proposed to not apply late competition to any projects funded in baseline allowances. Our position at Final Determinations is unchanged.

4.90 In our DDs IA, we considered, given the uncertainty around these uncertainty mechanisms being triggered during RIIO-2, that the resulting impact from the introduction of competition could not be assessed at the time. Nevertheless, we said we would expect that increasing competition for new, separable, and high value investment projects would put downward pressure on costs and deliver more innovative solutions. As such, we would expect to see a positive benefit for consumers arising from increasing competition relative to our counterfactual scenario.

4.91 Our assessment, as set out at Draft Determinations IA, remains unchanged.

4.92 Chapter 9 of the core document sets out in more detail what we will consider in deciding whether to apply a late competition model to specific projects that meet

[64] The late model criteria for competition is: new, separable and high value: projects of £100m or greater expected capital expenditure. See RIIO-2 Final Determinations – Core document, Chapter 9, para 9.5.
[65] Please see RIIO-2 Draft Determinations, Core Document, Chapter 9 - Increasing competition, for further details.

the criteria for competition and are brought forward under an uncertainty mechanism during RIIO-2.

Early competition

4.93 In our Final Determinations, we said that we will consult on any appropriate criteria for identifying system needs or projects suitable for delivery through early competition, including whether or not £50m is an appropriate cost threshold for early competition.[66] We note that this position is unchanged from Draft Determinations.

4.94 As key aspects of the early competition policy are still to be developed (including the criteria for early competition models and the role of the ESO), it is not possible to assess the impact of introducing early competition compared to the counterfactual. We note however that competition has the potential to put downward pressure on costs and deliver more innovative solutions. As such we continue to expect a positive impact for consumers.

Table 16: Impact of increasing competition in Final Determinations over a five-year price control

Impact	Final Determinations
Changes to competition	Not quantified – likely to result in consumer benefits and in a reduction to network companies' revenues if projects are approved.

Admin and resource costs

4.95 Our assessment of resource and admin costs is unchanged compared to the draft IA and the DD IA. We still consider that the introduction of new tools such as the BPI, confidence dependant sharing factors, bespoke outputs, outperformance wedge and RAMs, when compared against the counterfactual, would have resulted in additional admin and resource costs for both Ofgem and network companies.

4.96 Additionally, following consideration of responses to Draft Determinations, we are putting in place a number of mechanisms to ensure the overall process to managing uncertainty during the RIIO-2 period remains as agile, efficient and

[66] Please see RIIO-2 Final Determinations- Core document, Chapter 9.

proportionate as is reasonably practicable.[67] The introduction of these mechanisms will result in admin and resource costs for both Ofgem and network companies during the RIIO-2 period. We consider, however, that similar uncertainty mechanisms would also have been adopted under the counterfactual option.

4.97 Overall, we consider that the impacts resulting from other areas of this Impact Assessment are likely to have a more material and significant impact on company revenues and consumers. Nonetheless, consistent with the previous Impact Assessment, we consider that the introduction of new tools under our sector methodology and Draft Determinations proposals, confirmed at Final Determinations, would have resulted in some additional resource and admin costs for Ofgem and network companies and these would be passed to consumers through higher network charges.

Table 17: Impact of changes in administration costs on company revenues and consumers, over a five-year price control

Impact	Final Determinations
Changes to administration and resource costs	Not quantified – some increase in administration and resource costs due to new tools introduced but no change compared to counterfactual in relation to uncertainty mechanisms

[67] Full details can be found in the Final Determinations Core document, please see Chapter 7.

5 Bill estimation, distributional and other impacts

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

Indicative bill impacts

5.1 In the Draft Determinations Impact Assessment, we set out an indicative bill impact arising from our Draft Determination proposals. We are now updating our estimate based on decisions taken at Final Determinations.

Bill estimates for domestic customers

5.2 Based on Final Determinations decisions we have calculated that domestic consumers will see savings of £10[68] (2018/19 prices) a year/per household based on medium typical domestic consumption values, compared to the average bill in RIIO-1.

5.3 This indicative bill impact has again been derived from our Licence Models (LiMO) and estimates the change in average bills from RIIO-1 to the RIIO-2, taking into account all decisions taken at Final Determinations. This estimate takes into account the cost of debt.

5.4 We note that this updated estimate is £10 lower than £20 estimated in the Draft Determinations, at the same level of consumption. The difference between the two figures is largely due to the increase in totex and WACC allowances.

5.5 We note this bill estimate reflects the reduction in baseline expenditure only – it does not reflect the costs associated with any in-period reopeners. As investment increases to meet net zero targets through use of in-period uncertainty mechanisms, this average bill reduction will decrease.

[68] Bills and bill impacts are calculated by allocating total revenues between domestic and non-domestic customers.

Distributional impacts

5.6 We have updated our distributional analysis based on the expected bill impacts calculated above.

5.7 The identified bill impacts at medium typical domestic consumption value (TDCV), discussed above, allow us to update calculations of expected distributional impacts of our Final Determinations on different groups of domestic consumers (groups that Ofgem are required to have regard to by legislation, groups covered in our Consumer Vulnerability Strategy, Consumer Archetypes).

5.8 Our model and approach to calculating distributional impacts remains consistent with that set out in our Draft Determination Impact Assessment published in July[69].

5.9 For both gas and electricity, the bill impacts for the medium TDCV (12,000 kWh) reaches £10 savings per household. However, we expect different saving levels based on energy usage and income distribution. We expect for gas and electricity bills respectively, an average bill reduction of between £11 and £13 per consumer for the consumer types listed below in Table 18.

Table 18: Savings on gas and electricity bills per consumer type

Consumer type	Average savings	Equity adjusted results
Pensionable age	£11	£14
Disabled	£12	£15
Rural areas	£13	£13
No internet access	£11	£20
Unemployed	£12	£20
Lone parents	£11	£20
All	£12	£12

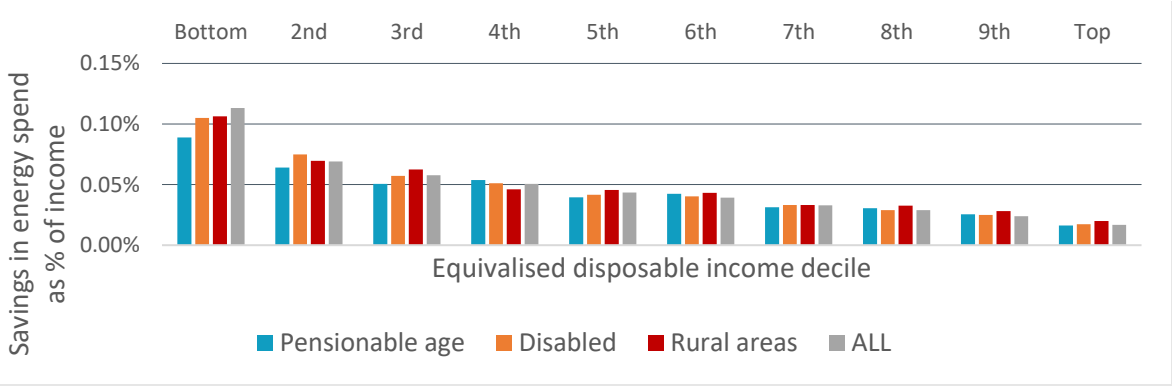
5.10 The figures in the table above detail the distribution of the savings per categorical consumer group. Equity adjusted results capture the fact that an additional unit

[69] Please see RIIO-2 Draft Determinations Impact Assessment, paragraphs 3.5-3.6.

of income improves the welfare of a low-income household more than that of a higher income household.

5.11 Additionally, the figures below show the impacts as a percentage of income per income decile for the three vulnerable consumer type groups. Other things being equal, the bottom deciles will experience higher savings in energy spend as percentage of income than the top deciles.

Figure 5: Impact on gas bills as a percentage of income



5.12 The distributional impact framework has been developed for the purpose of identifying the level of savings per archetype profile.[70] The savings are expected to be different due to the difference in average income, average energy expenditure and heating fuel. For example, the category D7, in the table below, is mainly described as high usage consumers with above average incomes, and therefore the savings will reach on average nearly £13.25 per household, for both fuels. However, the category C5, described as very low incomes, disengaged with prepayment meters, could save up to £9.29 per household, for both fuels. Table 19 below summarises the extent of the average savings for each fuel and each archetype profile. The last four archetypes are characterised by being off the gas grid. Therefore, they are the groups that will overall experience the least savings.

[70] https://www.ofgem.gov.uk/system/files/docs/2020/05/ofgem_energy_consumer_archetypes_-_final_report_0.pdf

Table 19: Savings on gas and electricity bills per archetype

Archetype	Average savings
A1	£8.66
A2	£17.07
B3	£12.77
B4	£13.23
C5	£9.29
D6	£10.91
D7	£13.25
E8	£10.45
E9	£9.15
F10	£3.86
G11	£3.52
H12	£2.70
H13	£3.60

Other impacts on companies and consumers

Expected impact on the environment

5.13 Ofgem's IA guidance requires us to consider the likely environmental impacts, on current and future consumers, from implementing a proposal. These impacts include those arising from reductions of greenhouse gases emissions.

5.14 In our Draft Determination IA, we set out our assessment of the environmental impacts from a common environmental framework across all networks and proposals relating to meeting the targets for Net Zero.

Common Environmental Framework

5.15 In our Final Determinations document, we set out decisions on our DDs proposals,[71] which involve the creation of a reputational ODI for business carbon footprint for each company and reporting on progress made on other environmental commitments relating to recycling and waste, embodied carbon, supply chain, natural biodiversity and natural capital. In the Annual Environmental Report, each company will report on the environmental impact of its network, the progress made in delivering its Environmental Action Plan during RIIO-2, and its contribution to the low carbon energy transition.

[71] Please see RIIO-2 Final Determinations – Core Document, para 2.59 and table underneath.

5.16 Our Final Determinations include a number of policies which are likely to result in a reduction of greenhouse gases emissions compared to the RIIO-1 period. All companies have included actions to reduce their business carbon footprint in their Environmental Action Plans.

5.17 It is difficult to quantify all of the potential environmental benefits of the RIIO-2 EAPs. Nonetheless, we expect to see improvements in many areas, including protecting and enhancing the natural environment, driving sustainable practices up the supply chain, sustainable resource use and waste reduction. As the network companies adopt environmental performance metrics in these areas, to establish baseline data and measure changes over time, the ability to quantify the effect of the network companies' EAP commitments should improve.

5.18 RIIO-2 requires a refocused approach on decarbonisation but Ofgem has always recognised the importance of the environment in exercising its regulatory functions. In light of changes to government policy and the setting of Net Zero targets, under any option, there would have been heightened focus on Net Zero policies.

Net Zero

5.19 We noted above that we would have been required to introduce new mechanisms for facilitating Net Zero targets under both the counterfactual and as part of our Final Determinations.

5.20 In our Final Determinations, we acknowledged that investment in the energy networks is likely to need to rise, perhaps significantly, to meet Net Zero.[72] In Section 6 we consider the mechanisms that have been proposed to allow funding for new investment to be released.

5.21 As investment in the networks to achieve Net Zero would arise both under our Final Determinations proposals and under the counterfactual, we consider that there would be no change in greenhouse gases.

5.22 Further, we note investment in the networks[73] has enabling and indirect effects as it allows reductions in greenhouses gases to be realised in other parts of the

[72] See Final Determinations – Core Document for additional background on approach to Net Zero in RIIO-2
[73] Here we refer to investment that either increases available capacity in the network or that allows connection to low carbon generation.

energy value chain, such as in case of connecting low carbon generation the electricity transmission network.

6 Risk and uncertainties

Our considerations regarding risks and uncertainty associated with Final Determinations are unchanged from the assessment provided in the Draft Determination Impact Assessment. In this Section we confirm the main conclusions from that assessment.

6.1 Our consideration of the main risks and uncertainties associated with Final Determinations is unchanged compared to the analysis we presented in the DD IA.[74]

6.2 While a number of changes have been made in our Final Determinations relative to Draft Determinations, particularly around the return on equity, the setting of totex allowances, and ensuring the agility of any in-period uncertainty mechanisms, these do not affect our conclusions on overall risk and uncertainty.

6.3 Overall, our Final Determinations reduce the variability of revenues and the risks related to company performance. We consider that we have introduced a more balanced risk/reward profile than has been observed in RIIO-1. In particular, the introduction of the Return Adjustment Mechanism, lower confidence dependant totex incentive rate, and PCDs mean that companies will face lower risks under our Final Determination, relative to the counterfactual. Further, 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 is likely to be more limited.

Risk and uncertainty related to Net Zero

6.4 In our Final Determinations we have introduced a number of mechanisms which will facilitate the achievement of the government's Net Zero target by 2050. These include the Net Zero reopener, Use-it-or-lose-it funding to enable Net Zero related development work and small value facilitation projects to go ahead in gas transmission and the Heat Policy reopener[75] in gas distribution. As noted in the DD IA and in our response to the PwC review in Section 2, the use of uncertainty mechanisms to flex the price control in response to major system or policy changes is a continuation of the approach used in previous price controls. For

[74] Please see Section 5 of RIIO-2 Draft Determinations Impact Assessment.
[75] For further details on the full range of mechanisms introduced to facilitate Net Zero, please see RIIO-2 Final Determinations, Core Document, Chapter 8, para 8.9-8.10.

those reasons, as stated in the DD IA, we consider that similar or equivalent mechanisms would have been implemented under the counterfactual. There is therefore no change in approach under our preferred option compared to our counterfactual.

COVID-19 impacts

6.5 In the DD IA, we did not consider the impact of the COVID-19 pandemic as at the time it was not possible to forecast accurately its implications on network companies and consumers.

6.6 For Final Determinations, we have concluded that the COVID-19 pandemic is an occurrence that it is outside network companies' and Ofgem's control. This in practice means that under both the counterfactual and the RIIO-2 regulatory arrangements Ofgem and network's companies would be required to respond to unforeseen events in their planning and delivery, protecting consumers and ensuring essential works are carried out to maintain energy supplies. Accordingly, for the purpose of this IA we assume no difference in the impacts arising from COVID-19.